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THE

NAUTICAL ALMANAC

AND

ASTRONOMICAL EPHEMERIS,

FOR THE YEAR 1788.

Publiſhed by ORDER of the

COMMISSIONERS OF LONGITUDE.

LONDON:
PRINTED BY WILLIAM RICHARDSON,
PRINTER;
AND SOLD BY
PETER ELMSLY in the STRAND,
Bookſeller to the ſaid COMMISSIONERS.
M DCC LXXXIII.

[Price Three Shillings and Six Pence.]

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EXTRACT from the Act of Parliament concerning the Longitude, made in the Fifth Year of the Reign of his preſent Majeſty.

WHEREAS the Publication of Nautical Almanacs conſtructed by proper Perſons, under the Direction of the ſaid Commiſſioners, would greatly contribute to make the ſaid Lunar Tables more generally uſeful; Be it further Enacted, by the Authority aforeſaid, That it ſhall and may be lawful to and for the ſaid Commiſſioners to cauſe ſuch Nautical Almanacs, or other uſeful Tables, to be conſtructed, and to print, publiſh, and vend, or cauſe to be printed, publiſhed, and vended, any Nautical Almanac or Almanacs, or other uſeful Table or Tables, which they, or the major Part of them, ſhall, from time to time, judge neceſſary and uſeful, in order to facilitate the Method of diſcovering the Longitude at Sea; any Law, Statute, excluſive Privilege, private Charter, or other Cuſtom, to the contrary thereof notwithſtanding.

And be it Enacted, by the Authority aforeſaid, That no Perſon or Perſons ſhall print, publiſh, or vend, or cauſe to be printed, publiſhed, or vended, any Nautical Almanac or Almanacs, or other Table or Tables conſtructed under the Direction of the ſaid Commiſſioners, without being firſt licenſed by the ſaid Commiſſioners, or the major Part of them: And if any Perſon or Perſons not ſo licenſed, or not being authorized by the Perſon or Perſons ſo licenſed by the ſaid Commiſſioners, ſhall print, publiſh, or vend, or cauſe to be printed, publiſhed, or vended, any ſuch Nautical Almanac or Almanacs, or other Table or Tables, every ſuch Perſon or Perſons ſhall, for every Copy of ſuch Nautical Almanac or Table ſo printed, publiſhed, or vended, forfeit and pay the Sum of Twenty Pounds; to be recovered by Action of Debt, Bill, Plaint, or Information, in any of his Majeſty's Courts of Record at *Weſtminſter*; and that One Moiety of ſuch Penalty and Forfeiture ſhall be to his Majeſty, his Heirs and Succeſſors, and the other Moiety to him or them that ſhall proſecute, inform, or ſue for the ſame.

EXTRACT

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EXTRACT of an Act for the Repeal of all former Acts concerning the Longitude at Sea, except ſo much thereof as relates to the Appointment and Authority of the Commiſſioners thereby conſtituted, and alſo ſuch Clauſes as relate to the conſtructing, printing, publiſhing, vending, and licenſing of Nautical Almanacs and other uſeful Tables; and for the more effectual Encouragement and Reward of ſuch Perſon and Perſons as ſhall diſcover a Method for finding the ſame, or ſhall make uſeful Diſcoveries in Navigation; and for the better making Experiments relating thereto: Made in the Fourteenth Year of the Reign of his preſent Majeſty.

BE it Enacted by the KING's Moſt Excellent Majeſty, by and with the Advice and Conſent of the Lords Spiritual and Temporal, and Commons, in this preſent Parliament aſſembled, and by the Authority of the ſame, That each and every of the ſaid recited Acts (ſave and except ſuch Clauſe and Clauſes in each or any of them as relate to the Appointment or Authority of all or any of the Commiſſioners thereby reſpectively conſtituted, and alſo ſuch Clauſe and Clauſes as relate to the conſtructing, printing, publiſhing, vending, and licenſing of Nautical Almanacs, and other uſeful Tables) ſhall, from and after the Twenty-fourth Day of *June* One thouſand Seven hundred and Seventy-four, be, and are hereby repealed.

And, for a due and ſufficient Encouragement to any Perſon or Perſons who ſhall diſcover any Method or Methods for finding the ſaid Longitude, Be it Enacted by the Authority aforeſaid, That the Firſt Author or Authors, Diſcoverer or Diſcoverers, of each and every ſuch Method or Methods, his or their Executors, Adminiſtrators, or Aſſigns, ſhall be intitled to and have the Rewards or Sums of Money herein-after mentioned; that is to ſay, In caſe the Method propoſed ſhall be, by means of a Time-keeper, the Principles whereof have not hitherto been made public, to the Reward or Sum of Five thouſand

Pounds, if ſuch Method determines the ſaid Longitude to One Degree of a great Circle, or Sixty geographical Miles; to the Reward or Sum of Seven thouſand Five hundred Pounds, if it determines the ſame to Two Thirds of that Diſtance; and to the Reward or Sum of Ten thouſand Pounds, if it determines the ſame to One Half of the ſaid Diſtance: Which reſpective Rewards ſhall be due and paid when ſuch Method ſhall have been ſufficiently tried by the following Experiments and Voyages to be made and performed by ſuch Perſons, and under ſuch Reſtrictions, as the ſaid Commiſſioners for the Diſcovery of Longitude at Sea reſpectively conſtituted by the above-recited Acts, or the major Part of them, ſhall think fit to appoint and direct; (that is to ſay), When and ſo ſoon as Two or more Time-keepers of the ſame Conſtruction ſhall have been tried at the ſame Time, for the Space of Twelve Months, at the Royal Obſervatory at *Greenwich*, then in Two Voyages round the Iſland of *Great Britain*, in contrary Directions, and in ſuch other Voyages to different Climates as the ſaid Commiſſioners ſhall think fit to direct and appoint; and after their Return from ſuch Voyages, or any of them, for ſuch longer Time, at the ſaid Obſervatory, not exceeding Twelve Months, as the ſaid Commiſſioners ſhall judge neceſſary; and alſo when and ſo ſoon as the ſaid Commiſſioners, or Two Thirds of them at the leaſt, ſhall, after ſuch Experiments and Voyages have been made and performed as aforeſaid, have declared and determined that ſuch Method is generally practicable and uſeful, and ſufficiently exact to determine the Longitude at Sea within the Degrees or Limits aforeſaid, in all Voyages for the Space of Six Months, (Impediments from cloudy and hazy Weather excepted); and alſo when and ſo ſoon as the Principles and Practice of ſuch Method are fully diſcovered and explained to the Satisfaction of the ſaid Commiſſioners, or Two Thirds of them at leaſt; and ſuch Author or Authors, Diſcoverer or Diſcoverers, ſhall have delivered up and aſſigned over to the ſaid Commiſſioners, for the Uſe of the Public, the abſolute Property of ſuch Time-keepers as ſhall have been tried by ſuch Experiments and Voyages as aforeſaid, together with all Plates, Deſcriptions, Theories, and Explanations belonging or relating to the ſame, and which ſhall contain the Whole of ſuch Diſcovery of the Longitude; and in caſe the Method propoſed ſhall be by means of improved Solar and Lunar Tables, then and in ſuch Caſe the Author or Authors of ſuch improved Solar and Lunar Tables, their Executors, Adminiſtrators, or Aſſigns, ſhall be intitled to and have the Reward or Sum of Five thouſand Pounds, if ſuch Solar and Lunar Tables ſhall prove ſufficiently exact to ſhew the Diſtance of the Moon from the Sun and Stars in the Heavens within Fifteen Seconds of a Degree, anſwering to about Seven Minutes of Longitude, after making an Allowance of Half a Degree for the Errors of Obſervation; and when it ſhall appear to the Satisfaction of the ſaid Commiſſioners, or Two Thirds of them at leaſt, that ſuch Tables are conſtructed intirely upon the Principles of Gravitation laid down by Sir *Iſaac Newton* (except with reſpect to thoſe Elements which muſt neceſſarily be taken from aſtronomical Obſervations), and alſo when the Truth of ſuch Tables ſhall have been further confirmed and proved by Compariſon with a Series of aſtronomical Obſervations made during a Period of Eighteen Years and a Half, which is deemed the Period of the Irregularities of the Lunar Motions; which Reward ſhall be due and paid, when the ſaid Commiſſioners, or Two Thirds of them at leaſt, ſhall have declared and determined, that ſuch Tables are ſufficiently exact to ſhew the Diſtance of the Moon from the Sun and Stars in the Heavens, within the Limits above-mentioned; and alſo when the Author or Authors of ſuch improved Solar and Lunar Tables, his or their Executors, Adminiſtrators, or Aſſigns, ſhall have delivered up and aſſigned over to the ſaid Commiſſioners, for the Uſe of the Public, the abſolute Right and Property to and in the ſame, together with the Theory relating thereunto; and in caſe any other Method ſhall be propoſed for finding the Longitude at Sea beſides thoſe before-mentioned, that then and in ſuch Caſe the Firſt Author or Authors, Diſcoverer or Diſcoverers, of any ſuch Method, his or their Executors, Adminiſtrators, or Aſſigns, ſhall be intitled to and have the Reward or Sum of Five thouſand Pounds, if it ſhall determine the ſaid Longitude within One Degree of a great Circle or Sixty geographical Miles; to the Reward or Sum of Seven thouſand Five hundred Pounds, if it ſhall determine the ſame to Two Thirds of that Diſtance; and to the Reward or Sum of Ten thouſand Pounds, if it ſhall determine the ſame to One Half of the ſame Diſtance; which reſpective Rewards ſhall be due and paid, ſo ſoon as the ſaid Commiſſioners, or Two Thirds of them at leaſt, ſhall, after proper Trial have been made by their Appointment and Direction, have determined that ſuch Method ſhall be generally practicable and uſeful for finding the Longitude at Sea within the reſpective Limits above-mentioned.

And be it further Enacted, by the Authority aforeſaid, That when and ſo ſoon as any ſuch Method or Methods, for the Diſcovery of the ſaid Longitude, ſhall be tried, as before-mentioned, and found practicable and uſeful at Sea, and ſufficiently exact to determine the Longitude within any of the Degrees or Limits aforeſaid, the ſaid Commiſſioners, or Two Thirds of them, ſhall certify the ſame, under their Hands and Seals, to the Commiſſioners of the Navy for the Time being, together with the Name or Names of the Perſon or Perſons who ſhall be the Author or Authors of ſuch Method or Methods; and upon the Receipt of ſuch Certificate, the ſaid Commiſſioners of the Navy are hereby authorized and required to make out a Bill or Bills upon the Treaſurer of the Navy for the reſpective Sum or Sums of Money to which the Author or Authors of ſuch Propoſal, his or their Executors, Adminiſtrators, or Aſſigns, ſhall be intitled by virtue of this Act; which Sum or Sums the ſaid Treaſurer is hereby required to pay to the ſaid Author or Authors, their Executors, Adminiſtrators, or Aſſigns accordingly, out of any Money that may be in his Hands unapplied to the Uſe of the Navy, according to the true Intent and Meaning of this Act.

EXTRACT, &c.

And be it further Enacted, by the Authority aforeſaid, That the ſaid Commiſſioners for the Diſcovery of Longitude at Sea, or any Five or more of them, ſhall have full Power and Authority to hear and receive any Propoſal or Propoſals that ſhall be made to them for diſcovering the ſaid Longitude, or for making any other uſeful Improvement in Navigation; and in caſe the ſaid Commiſſioners, or any Five or more of them, ſhall be ſo far ſatisfied of the Probability of any ſuch Diſcovery or Improvement as to think it proper to cauſe Experiments to be made thereof, they ſhall certify the ſame, together with the Names of the Author or Authors of ſuch Propoſal or Propoſals, under their Hands and Seals, to the Commiſſioners of the Navy, who are hereby authorized and required to make out a Bill or Bills upon the Treaſurer of the Navy for any Sum or Sums of Money as the ſaid Commiſſioners for the Diſcovery of Longitude at Sea, or any Five or more of them, ſhall think neceſſary for making ſuch Experiments; which Sum or Sums the Treaſurer of the Navy is hereby required to pay immediately to ſuch Perſon or Perſons as ſhall be appointed by the ſaid Commiſſioners to make thoſe Experiments out of any Money which ſhall be in his the ſaid Treaſurer's Hands unapplied as aforeſaid.

And be it further Enacted, by the Authority aforeſaid, That if any Perſon or Perſons ſhall make any Diſcovery for finding the Longitude at Sea, which, though not of ſo great Uſe as to be intitled to any of the great Rewards above ſpecified, ſhall nevertheleſs be adjudged by the ſaid Commiſſioners for the Diſcovery of Longitude at Sea, or the major Part of them, to be of conſiderable Uſe to the Public, or ſhall make any other Diſcovery or Diſcoveries, Improvement or Improvements, uſeful to Navigation; then, and in ſuch Caſe, ſuch Perſon or Perſons, his or their Executors, Adminiſtrators, or Aſſigns, ſhall, from time to time, have and receive ſuch leſs Reward or Sum or Sums of Money as the ſaid Commiſſioners, or the major Part of them, ſhall think reaſonable; and certify accordingly, under their Hands and Seals, to the Commiſſioners of the

Navy, who are hereby authorized and required to make out a Bill or Bills upon the Treaſurer of the Navy for any ſuch Sum or Sums of Money, which the ſaid Treaſurer is hereby authorized and required to pay immediately to ſuch Perſon or Perſons, his or their Executors, Adminiſtrators, or Aſſigns, out of any Money that ſhall be in his the ſaid Treaſurer's Hands unapplied as aforeſaid.

Provided alſo, and it is hereby further Enacted, That in caſe any Perſon or Perſons who ſhall and may have received any Sum or Sums of Money, by virtue of this Act, as a Reward for any Method of diſcovering the Longitude at Sea, ſhall afterwards become intitled to any of the greater Rewards appointed by this Act, for or on account of the ſame Method; that then, and in ſuch Caſe, ſuch Sum or Sums of Money as they ſhall or may have received as aforeſaid ſhall be conſidered as Part of ſuch greater Reward, and deducted therefrom accordingly; and that no Perſon ſhall receive more in the Whole for any One Method for diſcovering the Longitude at Sea than the greateſt Reward appointed for ſuch Method by this Act.

By

By the COMMISSIONERS appointed by Acts of Parliament for the Diſcovery of the Longitude at Sea; and for examining, trying, and judging of all Propoſals, Experiments, and Improvements relating to the ſame.

WHEREAS we have employed proper Perſons to compute Nautical Almanacs and Aſtronomical Ephemerides for the Years 1787, 1788, 1789, 1790, 1791, and 1792, which will greatly contribute to make the Lunar Tables conſtructed by the late Profeſſor MAYER of *Gottingen* (which you have already printed with our Authority) more generally uſeful; and whereas we think fit to employ you to print the ſaid Nautical Almanacs and Aſtronomical Ephemerides: We do therefore, in purſuance of the Power veſted in us by Act of Parliament, hereby licenſe, authorize, and impower you to cauſe the ſame to be printed, together with ſuch other uſeful Tables for facilitating the Method of diſcovering the Longitude at Sea, as ſhall have been conſtructed under our Direction, and will be delivered to you by the Reverend Dr. NEVIL MASKELYNE, his Majeſty's Aſtronomer Royal at *Greenwich*; and for ſo doing this ſhall be your ſufficient Warrant. Given under our Hands and Seals the 13th Day of *February* 1783.

HOWE (L.S.)
C.W.CORNWALL (L.S)
H. DUNDAS (L.S.)
T. FRANKLAND (L.S.)
RODNEY (L.S.)
J. YOUNG (L.S.)
KEPPEL (L.S.)
JOS. BANKS (L.S.)
N. MASKELYNE (L.S.)
J. SMITH (L.S.)
E. WARING (L.S.)
A. SHEPHERD (L.S.)
J. MARRIOTT (L.S.)
T. ORDE (L.S.)
G. ROSE (L.S.)
P. STEPHENS (L.S.)
C. MIDDLETON (L S.)
J. SMITH (L.S.)

To Mr. WILLIAM
RICHARDSON,
Printer in the *Strand*.

By Command of the Commiſſioners,

H. PARKER, Secretary.

By the Commiſſioners appointed by Acts of Parliament for the Diſcovery of the Longitude at Sea; and for examining, trying, and judging of all Propoſals, Experiments, and Improvements relating to the ſame.

WHEREAS we think fit to employ you (in the room of Mr. *John Nourſe* deceaſed) to publiſh and vend, and to cauſe to be publiſhed and vended, all ſuch Nautical Almanacs and Aſtronomical Ephemerides, and likewiſe all ſuch other uſeful Tables, conſtructed under our Direction, as have hitherto been printed by Mr. *William Richardſon*, from the Year 1767 to the preſent Time, and alſo ſuch as may henceforward be printed by him, or any other Perſon employed by us for the Purpoſe, for the ſeveral Years next enſuing, down to the Year 1792 incluſive. We do therefore, in purſuance of the Power veſted in us by Act of Parliament, hereby licenſe, authorize, and impower you to publiſh and vend, and to cauſe to be publiſhed and vended, ſuch Nautical Almanacs and Aſtronomical Ephemerides, as well as ſuch other uſeful Tables, conſtructed under our Direction, as have hitherto been printed by Mr. *William Richardſon* from the Year 1767 to the preſent Time, and alſo ſuch as may henceforward be printed by him, or any other Perſon employed by us for the Purpoſe, for the ſeveral Years next enſuing down to the Year 1792 incluſive. For which this ſhall be your Warrant. Given under our Hands and Seals at the Admiralty, the 7th Day of *December* 1782.

Keppel (L.S.)
C.W. Cornwall (L.S.)
T. Frankland (L.S.)
Rodney (L.S.)
J. Young (L.S.)
R. Harland (L.S.)
Howe (L.S.)
Jos. Banks (L.S.)
N. Maskelyne (L.S.)
T. Hornsby (L.S.)
J. Smith (L.S.)
E. Waring (L.S.)
A. Shepherd (L.S.)
J. Marriott (L.S.)
T. Orde (L.S.)
G. Rose (L.S.)
P. Stephens (L.S.)
C. Middleton (L.S.)
J. Smith (L.S.)

To Mr. Peter Elmsly,
Bookſeller in the *Strand*.

By Command of the Commiſſioners,
H. Parker, Secretary.

PREFACE.

THE Commiſſioners of Longitude, in purſuance of the Powers veſted in them by Act of Parliament, preſent the Public with the NAUTICAL ALMANAC and ASTRONOMICAL EPHEMERIS for the Year 1788, being the Twenty-ſecond Impreſſion, to be continued annually; a Work which muſt greatly contribute to the Improvement of Aſtronomy, Geography, and Navigation. This EPHEMERIS contains every Thing eſſential to general Uſe that is to be found in any Ephemeris hitherto publiſhed, with many other uſeful and intereſting Particulars never yet offered to the Public in any Work of this Kind. The Tables of the Moon had been brought by the late Profeſſor MAYER of Gottingen to a ſufficient Exactneſs to determine the Longitude at Sea, within a Degree, as appeared by the Trials of ſeveral Perſons who made Uſe of them. The Difficulty and Length of the neceſſary Calculations ſeemed the only Obſtacles to hinder them from becoming of general Uſe: To remove which this EPHEMERIS was made; the Mariner being hereby relieved from the Neceſſity of calculating the Moon's Place from the Tables, and afterwards computing the Diſtance to Seconds by Logarithms, which are the principal and only very delicate Part of the Calculus; ſo that the finding the Longitude by the Help of the EPHEMERIS is now in a Manner reduced to the Computation of the Time, an Operation

ration equal to that of an Azimuth, and the Correction of the Diſtance on account of Refraction and Parallax, which is alſo rendered very eaſy by either of the Two Methods invented by Mr. LYONS and Mr. DUNTHORNE, and publiſhed in the Firſt Edition of the Tables requiſite to be uſed with the EPHEMERIS, and ſince, with Improvements, in the Second Edition of the ſame Tables; or by either of the Two Methods annexed to the EPHEMERIS of 1772, being both Improvements of the Method which I formerly publiſhed in the BRITISH MARINER'S GUIDE and PHILOSOPHICAL TRANSACTIONS, the Firſt by myſelf, and the Second by Mr. GEORGE WITCHELL, which are now alſo annexed to the Second Edition of the REQUISITE TABLES; but ſtill more ſo by the GENERAL TABLES for correcting the apparent Diſtance of the Moon and a Star or the Sun from the Effects of Refraction and Parallax, computed at great Expence by Order of the Commiſſioners of Longitude, and publiſhed under the Care of Dr. SHEPHERD, Plumian Profeſſor of Aſtronomy and experimental Philoſophy, at CAMBRIDGE, in 1772.

All the Calculations of the EPHEMERIS relating to the Sun were made from Mr. MAYER's laſt Manuſcript Tables, received by the Board of Longitude after his Deceaſe, which have been printed under my Inſpection, and publiſhed in 1770; but the Calculations of the Moon were made in this EPHEMERIS, for the Twelfth time, from new Tables, improved from MAYER's Tables, compoſed by Mr. CHARLES MASON, under my Direction, from Calculations made by Order of the Board of Longitude, upon the Series of Lunar

Obſervations made by the late Dr. BRADLEY, and publiſhed in the Nautical Almanac of 1774. In theſe new Tables, the Epoch of the Moon's mean Longitude is 1″ leſs, that of the Apogee is 56″ leſs, and that of the Aſcending Node 45″ more, than in MAYER's printed Tables, and the Equations are calculated to Tenths of a Second. Moreover, One new Equation is introduced, whoſe Argument is the mean Diſtance of the Moon from the Sun's Apogee, and Maximum 16″,4. Theſe new Tables, when compared with the above-mentioned Series of Obſervations, a proper Allowance being made for the unavoidable Error of Obſervation, ſeem to give always the Moon's Longitude in the Heavens correctly within 45 Seconds of a Degree; which greateſt Error, added to a poſſible Error of One Minute in taking the Moon's Diſtance from the Sun or a Star at Sea, will at a Medium only produce an Error of 50 Minutes of Longitude.

The Calculations of the Planets, and of the Eclipſes of Jupiter's Satellites were calculated from the Tables of Mr. WARGENTIN, annexed to M. DE LA LANDE's Aſtronomy, excepting the Eclipſes of Jupiter's Second Satellite, which were inſerted in this EPHEMERIS for the Eighth time from new Tables tranſmitted to me from their learned Author Mr. WARGENTIN, Secretary to the Royal Academy of Sciences at STOCKHOLM, and publiſhed at the End of the Nautical Almanac of 1779.

All the Articles of the EPHEMERIS were computed by Two ſeparate Perſons, and examined by a Third, except the Moon's Longitude, Latitude, Right Aſcenſion, Declination, Semidiameter, and Parallax,

Parallax, which, for Noon, were computed by One Perſon, and for Midnight by another, and the Truth of theſe Calculations aſcertained by mean, or Differences, which, for the Moon's Longitude were carried as far as the Fourth Order.

To this EPHEMERIS is annexed a Deſcription of of an accurate and ſimple Method of adjuſting HADLEY's Quadrant for the back Obſervation, by Mr. *Robert Blair*; which, it is hoped, will be a Means of bringing that uſeful but too much neglected Application of the Quadrant into common Uſe. In this Paper a Note is inſerted, pointing out an Error ariſing in the Uſe of HADLEY's Quadrant from the Bending of the Index, with the Means of obviating it; which was firſt diſcovered many Years ago by an Officer of diſtinguiſhed Rank and Character in his Majeſty's naval Service, who firſt proved the Certainty of the lunar Obſervations, in Conjunction with MAYER's Tables, in finding the Longitude at Sea.

In the next EPHEMERIS the Moon's Place will be computed from new Tables compoſed by Mr. *Charles Maſon*, ſtill more exact than the former ones, as well from the Correction of the former Epochs and Equations as from the Introduction of ſeveral new Equations, and the Whole being calculated to Tenths of a Second.

NEVIL MASKELYNE,
ASTRONOMER ROYAL.

GREENWICH,
July 7th,
1783.

EXPLANATION of the Characters uſed in the EPHEMERIS.

The PLANETS, &c.

☉ The Sun.
☾ The Moon.
☿ Mercury.
♀ Venus.

⊖ The Earth.
♂ Mars.
♃ Jupiter
♄ Saturn.

☊ The Moon's, or any other Planet's Aſcending Node.
☋ The Deſcending Node.
☌ Conjunction, or Planets ſituated in the ſame Longitude.
☍ Oppoſition, or Planets ſituated in oppoſite Longitudes, or differing 6 Signs from each other.

Signs of the Zodiac.

S.
0. ♈ Aries.
1. ♉ Taurus.
2. ♊ Gemini.
3. ♋ Cancer.
4. ♌ Leo.
5. ♍ Virgo.

S.
6. ♎ Libra.
7. ♏ Scorpio.
8. ♐ Sagittarius.
9. ♑ Capricornus.
10. ♒ Aquarius.
11. ♓ Piſces.

ECLIPSES for the YEAR 1788.

June 3. ☉ eclipſed, viſible: H. M.
Beginning — — — — 19. 24½
Middle — — — — 20. 11
End — — — — — — 21. 0
Digits eclipſed 3°. 59′ on ☉'s ſouthern Limb. ☾ makes the Firſt Impreſſion on the ſolar Diſc at 96° from ☉'s Vertex on the Right Hand.

Nov. 27. ☉ eclipſed, inviſible:
☌ at 6^h. 10′. in Long. 8^s. 6°. 16′. ☾'s Lat. 9′ S.
☉ will be centrally eclipſed on the Merid. at 6^h. 13′. in Long. 93°¼. Weſt, and Lat. 30°½ South.

OBLIQUITY, &c.

1788.		Obliquity of the Ecliptic. D. M. S.	Equat. of Equin. Points. S.
Jan.	1.	23. 27. 59,4	+ 18,0
Apr.	1.	23. 27. 58,5	+ 17,8
July	1.	23. 27. 57,6	+ 17,4
Oct.	1.	23. 27. 56,7	+ 17,0
Dec.	31.	23. 27. 55,8	+ 16,4

Erratum in the NAUTICAL ALMANAC of 1784.

In the Title of the Equation of Time for *September, for* Add *read* Subſtract.

I. JANUARY 1788.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Tu.	*Circumciſion.*
2	W.	
3	Th.	
4	F.	
5	Sa.	
6	*Su.*	*Epiphany.*
7	M.	
8	Tu.	Lucian.
9	W.	
10	Th.	
11	F.	
12	Sa.	
13	*Su.*	*1ſt Su. aft. Epi.* Hil. Cam.
14	M.	Oxf. T. beg. [Ter. beg.
15	Tu.	
16	W.	
17	Th.	
18	F.	*Q. Charlotte's birth-day*
19	Sa.	[*kept.* Priſca.
20	*Su.*	*Septuageſima-Su.* Fabian.
21	M.	Agnes. In 8 days of St.
22	Tu.	Vincent. [Hil. 1 ret.
23	W.	Hilary Term begins.
24	Th.	
25	F.	*Converſion of St. Paul.*
26	Sa.	[*Fred. born.*
27	*Su.*	*Sexageſima-Sun. Pr. Au.*
28	M.	From St. Hil. in 15 days,
29	Tu.	[2 ret.
30	W.	*K. Charles I. martyr.*
31	Th.	

Phaſes of the Moon.	D. H. M.
New Moon - - -	7. 23. 54
Firſt Quarter - -	15. 21. 57
Full Moon - - -	22. 13. 59
Laſt Quarter - - -	29. 13. 15

Other Phenomena.	
D. H. M.	
3. 21. 41	☾ ☌ ♏
5. 11. 46	☾ θ Ophiuchi.
13. 41	☾ β Ophiuchi.
6. 2. 11	☾ ☿
15. 17. 59	☾ ν ♓
16.	♀ γ ♑ d.Lat. 56′
18.	♀ ☌ ♑ d.Lat. 58′
19. 13. 27	☾ ♃
18. 48	☉ enters ♒
20. 10. 23	Im. of ν ♊ * 1′ S. of ☽'s cent.
11. 33	Em. * 4′½ N.
13. 39	☾ μ ♊
21. 4. 24	Em. of ζ ♊ * 3′ N. of ☽'s cent.
22.	♀ ι ♒ d.Lat. 26′
23. 15. 13	☾ ξ ♌
19. 24	☾ ο ♌
24.	♀ ♄ d.Lat. 7′.
3. 35	☾ π ♌
25. 21. 10	☾ e ♌
31. 3. 59	☾ ☌ ♏

JANUARY 1788.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. South.	Equat. of Time. Add.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Tu.	9. 10.51.26	18.47.14,3	23. 1.20	3. 59,9	28,3
2	W.	9. 11.52.37	18.51.39. 2	22.56. 6	4. 28,2	27,9
3	Th.	9. 12.53.49	18.56. 3. 8	22.50.26	4. 56,1	27,6
4	F.	9. 13.55. 1	19. 0.27. 9	22.44.18	5. 23,7	27,2
5	Sa.	9. 14.56.13	19. 4.51. 7	22.37.43	5. 50,9	26,7
6	*Su.*	9. 15.57.25	19. 9.15,1	22.30.41	6. 17,6	26,2
7	M.	9. 16.58.36	19.13.38,0	22.23.13	6. 43,8	25,7
8	Tu.	9. 17.59.48	19.18. 0,3	22.15.18	7. 9,5	25,2
9	W.	9. 19. 0.59	19.22.22,2	22. 6.57	7. 34. 7	24,7
10	Th.	6. 20. 2.10	19.26.43,4	21.58.10	7. 59,4	24,1
11	F.	9. 21. 3.20	19.31. 4,1	21.48.57	8. 23,5	23,4
12	Sa.	9. 22. 4.30	19.35.24,2	21.39.20	8. 46,9	22,8
13	*Su.*	9. 23. 5.38	19.39.43,6	21.29.15	9. 9,7	22,2
14	M.	9. 24. 6.46	19.44. 2,4	21.18.47	9. 31,9	21,4
15	Tu.	9. 25. 7.53	19.48.20,4	21. 7.55	9. 53,3	20,7
16	W.	9. 26. 8.59	19.52.37,8	20.56.39	10. 14,0	20,0
17	Th.	9. 27.10. 4	19.56.54,4	20.44.57	10. 34,0	19,3
18	F.	9. 28.11. 8	20. 1.10,3	20.32.54	10. 53,3	18,5
19	Sa.	9. 29.12.11	20. 5.25,4	20.20.25	11. 11,8	17,8
20	*Su*	10. 0.13.13	20. 9.39,8	20. 7.35	11. 29,6	17,0
21	M.	10. 1.14.13	20.13.53,3	19.54.23	11. 46,6	16,2
22	Tu.	10. 2.15.13	20.18. 6,1	19.40.48	12. 2,8	15,4
23	W.	10. 3.16.12	20.22.18,2	19.26.51	12. 18,2	14,6
24	Th.	10. 4.17.11	20.26.29,4	19.12.32	12. 32,8	13,8
25	F.	10. 5.18. 8	20.30.39,8	18.57.53	12. 46,6	13,1
26	Sa.	10. 6.19. 4	20.34.49,5	18.42.53	12. 59,7	12,3
27	*Su.*	10. 7.20. 0	20.38.58,3	18.27.32	13. 12,0	11,4
28	M.	10. 8.20.55	20.43. 6,4	18.11.53	13. 23,4	10,7
29	Tu.	10. 9.21.49	20.47.13,6	17.55.52	13. 34,1	9,9
30	W.	10. 10.22.43	20.51.20,0	17.39.32	13. 44,0	9,0
31	Th.	0. 11.23.35	20.55.25. 7	17.22.54	13. 53,0	

Days.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 19,3	1. 10,9	2. 32,9	9. 992639	8. 25. 19
7	16. 19,1	1. 10,6	2. 32,9	9. 992715	8. 25. 0
13	16. 18,9	1. 10,1	2. 32,8	9. 992849	8. 24. 41
19	16. 18,3	1. 9,5	2. 32,6	9. 993048	8. 24. 22
25	16. 17,6	1. 8,9	2. 32,4	9. 993344	8. 24. 3

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite. Emerſions.

Days	H. M. S.
*2	13. 7. 41
*4	7. 35. 31
6	2. 3. 24
7	20. 31. 18
*9	14. 59. 14
*11	9. 27. 12
13	3. 55. 15
14	22. 23. 18
16	16. 51. 26
*18	11. 19. 36
*20	5. 47. 47
22	0. 16. 1
23	18. 44. 20
*25	13. 12. 43
*27	7. 41. 6
29	2. 9. 33
30	20. 38. 0

II. Satellite. Emerſions.

Days	H. M. S.
*4	10. 23. 25
7	23. 40. 56
*11	12. 58. 31
15	2. 16. 17
*18	15. 34. 13
22	4. 52. 16
25	18. 10. 32
*29	7. 28. 55

III. Satellite.

Days	H. M. S.	
2	17. 34. 21	I.
2	20. 15. 37	E.
9	21. 30. 57	I.
10	0. 13. 23	E.
17	1. 28. 16	I.
17	4. 11. 52	E.
*24	5. 26. 16	I.
*24	8. 11. 4	E.
*31	9. 24. 59	I.
*31	12. 11. 1	E.

IV. Satellite.

Days	H. M. S.	
12	1. 16. 51	I.
12	1. 59. 51	E.
28	19. 9. 29	I.
28	20. 17. 58	E.

JANUARY 1788. IV.

Days.	Heliocentric Longitude. S. D. M.	Heliocentric Latitude. D. M.	Geocentric Longitude. S. D. M.	Geocentric Latitude. D. M.	Declination. D. M.	Paſſage over Merid. H. M.
			MERCURY.			
1	6. 17. 8	3. 22 N	8. 18. 57	1. 16 N	21. 45 S	22. 26
4	6. 27. 6	2. 15	8. 22. 44	0. 50	22. 26	22. 30
7	7. 6. 29	1. 9	8. 26. 44	0. 25	23. 1	22. 34
10	7. 15. 24	0. 3 N	9. 0. 53	0. 1 N	23. 27	22. 39
13	7. 24. 0	1. 0 S	9. 5. 12	0. 22 S	23. 44	22. 45
16	8. 2. 23	2. 0	9. 9. 35	0. 42	23. 50	22. 51
19	8. 10. 39	2. 57	9. 14. 5	1. 2	23. 45	22. 58
22	8. 18. 53	3. 56	9. 18. 41	1. 19	23. 28	23. 6
25	8. 27. 12	4. 38	9. 23. 22	1. 33	22. 59	23. 14
28	9. 5. 40	5. 22	9. 28. 9	1. 46	22. 17	23. 22
31	9. 14. 24	5. 59	10. 3. 2	1. 55	21. 22	23. 30
			VENUS.			
1	10. 24. 12	3. 10 S	9. 29. 7	1. 27 S	21. 47 S	1. 19
7	11. 3. 42	3. 20	10. 6. 37	1. 32	20. 8	1. 24
13	11. 13. 13	3. 23	10. 14. 7	1. 35	18. 8	1. 28
19	11. 22. 44	3. 21	10. 21. 37	1. 36	15. 49	1. 33
25	0. 2. 17	3. 14	10. 29. 5	1. 33	13. 16	1. 36
			MARS. ☍ 7^{d}. 9^{h}.			
1	3. 14. 23	1. 32 N	3. 19. 54	3. 55 N	25. 52 N	12. 38
7	3. 17. 11	1. 35	3. 17. 30	4. 4	26. 21	12. 1
13	3. 19. 57	1. 38	3. 15. 8	4. 7	26. 42	11. 25
19	3. 22. 42	1. 40	3. 12. 58	4. 8	26. 57	10. 50
25	3. 25. 26	1. 42	3. 11. 8	4. 5	27. 4	10. 17
			JUPITER.			
1	2. 23. 11	0. 21 S	2. 19. 6	0. 26 S	22. 35 N	10. 24
7	2. 23. 42	0. 21	2. 18. 25	0. 25	22. 33	9. 54
13	2. 24. 13	0. 20	2. 17. 50	0. 24	22. 31	9. 26
19	2. 24. 44	0. 19	2. 17. 22	0. 23	22. 29	8. 58
25	2. 25. 14	0. 19	2. 16. 59	0. 22	22. 28	8. 31
			SATURN.			
1	10. 29. 52	1. 33 S	10. 25. 48	1. 27 S	14. 18 S	3. 6
7	11. 0. 4	1. 33	10. 26. 24	1. 27	14. 5	2. 42
13	11. 0. 15	1. 33	10. 27. 2	1. 26	13. 52	2. 19
19	11. 0. 27	1. 34	10. 27. 42	1. 26	13. 38	1. 56
25	11. 0. 38	1. 34	10. 28. 23	1. 26	13. 24	1. 33

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D.M.S.
1	Tu.	6. 24. 8.27	7. 0.23.59	4. 40. 20 S	4.22.27 S
2	W.	7. 6.35. 8	7. 12.42.25	4. 1. 42	3.38.23
3	Th.	7. 18.46.24	7. 24.47.31	3. 12. 49	2.45.18
4	F.	8. 0.46.20	8. 6.43.15	2. 16. 10	1.45.42
5	Sa.	8. 12.38.47	8. 18.33.14	1. 14. 14	0.42. 4 S
6	*Su.*	8. 24.27. 4	9. 0.20.35	0. 9. 33 S	0.23. 2 N
7	M.	9. 6.14. 7	9. 12. 7.55	0. 55. 20 N	1.27. 4
8	Tu.	9. 18. 2.16	9. 23.57.23	1. 57. 51	2.27.26
9	W.	9. 29.53.33	10. 5.50.56	2. 55. 27	3.21.38
10	Th.	10. 11.49.48	10. 17.50.23	3. 45. 41	4. 7.21
11	F.	10. 23.52.55	10. 29.57.39	4. 26. 21	4.42.28
12	Sa.	11. 6. 4.55	11. 12.14.56	4. 55. 26	5. 5. 7
13	*Su.*	11. 18.28. 6	11. 24.44.43	5. 11. 16	5.13.46
14	M.	0. 1. 5. 8	0. 7.29.44	5. 12. 29	5. 7.19
15	Tu.	0. 13.58.50	0. 20.32.49	4. 58. 11	4.45. 2
16	W.	0. 27.11.59	1. 3.56.37	4. 27. 57	4. 6.53
17	Th.	1. 10.46.58	1. 17.43.10	3. 42. 4	3.13.38
18	F.	1. 24.45.20	2. 1.53.22	2. 41. 54	2. 7.14
19	Sa.	2. 9. 7.10	2. 16.26.21	1. 30. 4	0.51. 0 N
20	*Su.*	2. 23.50.26	3. 1.18.48	0. 10. 40 N	0.30.12 S
21	M.	3. 8.50.33	3. 16.24.44	1. 10. 48 S	1.50.20
22	Tu.	3. 24. 0. 9	4. 1.35.39	2. 27. 58	3. 2.57
23	W.	4. 9. 9.52	4. 16.41.35	3. 34. 33	4. 2.13
24	Th.	4. 24. 9.34	5. 1.32.47	4. 25. 28	4.44. 0
25	F.	5. 8.50.18	5. 16. 1.25	4. 57. 40	5. 6.23
26	Sa.	5. 23. 5.34	6. 0. 2.32	5. 10. 15	5. 9.27
27	*Su.*	6. 6.52. 6	6. 13.34.24	5. 4. 14	4.54.54
28	M.	6. 20. 9.36	6. 26.38. 6	4. 41. 49	4.25.18
29	Tu.	7. 3. 0.19	7. 9.16.49	4. 5. 45	3.43.29
30	W.	7. 15.28. 7	7. 21.34.55	3. 18. 54	2.52.19
31	Th.	7. 27.37.49	8. 3.37.29	2. 24. 4	1.54.31

JANUARY 1788.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſsage over Merid.	☽'s Right Aſcenſ. at Noon.	☽'s Right Aſcenſ. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	Tu.	24	19. 11	200. 35	206. 42	13. 43 S	15. 43 S
2	W.	25	19. 58	212. 52	219. 5	17. 32	19. 8
3	Th.	26	20. 46	225. 22	231. 42	20. 31	21. 40
4	F.	27	21. 34	238. 6	244. 33	22. 33	23. 11
5	Sa.	28	22. 23	251. 1	257. 29	23. 34	23. 40
6	*Su.*	29	23. 12	263. 57	270. 23	23. 31	23. 5
7	M.	1	23. 59	276. 45	283. 3	22. 24	21. 28
8	Tu.	2	☌	289. 16	295. 24	20. 18	18. 55
9	W.	3	0. 45	301. 26	307. 22	17. 20	15. 34
10	Th.	4	1. 29	313. 13	319. 0	13. 39	11. 34
11	F.	5	2. 12	324. 43	330. 23	9. 23	7. 5
12	Sa.	6	2. 54	336. 2	341. 41	4. 42 S	2. 16 S
13	*Su.*	7	3. 36	347. 22	353. 6	0. 13 N	2. 43 N
14	M.	8	4. 19	358. 55	4. 51	5. 12	7. 41
15	Tu.	9	5. 5	10. 54	17. 9	10. 6	12. 26
16	W.	10	5. 54	23. 35	30. 14	14. 39	16. 43
17	Th.	11	6. 47	37. 8	44. 17	18. 36	20. 14
18	F.	12	7. 44	51. 41	59. 19	21. 36	22. 38
19	Sa.	13	8. 45	67. 10	75. 10	23. 19	23. 37
20	*Su.*	14	9. 48	83. 17	91. 25	23. 30	22. 57
21	M.	15	10. 51	99. 32	107. 34	21. 59	20. 38
22	Tu.	16	11. 52	115. 26	123. 8	18. 54	16. 51
23	W.	17	12. 49	130. 38	137. 55	14. 32	12. 0
24	Th.	18	13. 42	144. 59	151. 52	9. 19	6. 31
25	F.	19	14. 33	158. 35	165. 9	3. 40 N	0. 49 N
26	Sa.	20	15. 22	171. 37	177. 59	2. 0 S	4. 45 S
27	*Su.*	21	16. 9	184. 17	190. 33	7. 23	9. 53
28	M.	22	16. 57	196. 48	203. 3	12. 14	14. 24
29	Tu.	23	17. 44	209. 20	215. 38	16. 22	18. 8
30	W.	24	18. 33	221. 58	228. 21	19. 40	20. 57
31	Th.	25	19. 22	234. 46	241. 13	21. 59	22. 46

JANUARY 1788.

Days of the Month.	Days of the Week.	Semid^r. ☽ at Noon. M. S.	Semid^r. ☽ at Midnight. M. S.	Hor. Par. ☽ at Noon. M. S.	Hor. Par. ☽ at Midnight. M. S.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
1	Tu.	15. 16	15. 11	56. 2	55. 42	5068	5094
2	W.	15. 6	15. 1	55. 24	55. 7	5118	5140
3	Th.	14. 57	14. 54	54. 53	54. 40	5158	5175
4	F.	14. 51	14. 49	54. 30	54. 22	5189	5199
5	Sa.	14. 47	14. 46	54. 15	54. 10	5209	5215
6	*Su.*	14. 45	14. 44	54. 7	54. 5	5219	5222
7	M.	14. 44	14. 44	54. 4	54. 5	5223	5222
8	Tu.	14. 45	14. 46	54. 7	54. 10	5219	5215
9	W.	14. 47	14. 49	54. 15	54. 21	5209	5201
10	Th.	14. 51	14. 53	54. 28	54. 36	5191	5181
11	F.	14. 55	14. 58	54. 45	54. 57	5169	5153
12	Sa.	15. 2	15. 6	55. 10	55. 24	5136	5118
13	*Su.*	15. 10	15. 15	55. 40	55. 58	5097	5073
14	M.	15. 20	15. 26	56. 17	56. 38	5049	5022
15	Tu.	15. 32	15. 38	57. 0	57. 24	4994	4964
16	W.	15. 45	15. 52	57. 48	58. 13	4933	4902
17	Th.	15. 59	16. 6	58. 39	59. 4	4870	4839
18	F.	16. 13	16. 20	59. 30	59. 55	4808	4777
19	Sa.	16. 26	16. 31	60. 18	60. 38	4750	4725
20	*Su.*	16. 36	16. 40	60. 55	61. 9	4705	4689
21	M.	16. 42	16. 44	61. 19	61. 24	4677	4671
22	Tu.	16. 44	16. 43	61. 24	61. 20	4671	4676
23	W.	16. 40	16. 36	61. 11	60. 57	4686	4703
24	Th.	16. 32	16. 26	60. 39	60. 18	4724	4750
25	F.	16. 19	16. 12	59. 53	59. 26	4779	4812
26	Sa.	16. 4	15. 56	58. 58	58. 29	4846	4882
27	*Su.*	15. 48	15. 40	58. 0	57. 31	4918	4955
28	M.	15. 33	15. 26	57. 3	56. 37	4990	5023
29	Tu.	15. 19	15. 13	56. 12	55. 49	5055	5085
30	W.	15. 7	15. 2	55. 28	55. 10	5112	5136
31	Th.	14. 58	14. 54	54. 55	54. 42	5155	5173

Distances of ☽'s Center from Sun, and from Stars east of her.

Days.	Stars Names.	Noon. D. M. S.	3 Hours. D. M. S.	6 Hours. D. M. S.	9 Hours. D. M. S	12 Hours. D. M. S.	15 Hours. D. M. S.	18 Hours. D. M. S.	21 Hours. D.M.S.
1	The Sun.	76. 45. 41	75. 19. 14	73. 53. 2	72.27. 8	71. 1. 29	69. 36. 6	68. 10. 57	66.46. 3
2		65. 21. 23	63. 56. 57	62. 32. 42	61. 8.41	59. 44. 51	58. 21. 12	56. 57. 44	55.34.27
3		54. 11. 20	52. 48. 23	51. 25. 34	50. 2.55	48. 40. 24	47. 18. 0	45. 55. 44	44.33.35
4		43. 11. 33	41. 49. 38	40. 27. 49	39. 6. 6				
10	α Arietis.	82. 20. 36	80. 51. 7	79. 21. 34	77.51.55	76. 22. 11	74. 52. 21	73. 22. 25	71.52.22
11		70. 22. 14	68. 51. 59	67. 21. 37	65.51. 8	64. 20. 32	62. 49. 48	61. 18. 56	59.47.57
12		58. 16. 50	56. 45. 35	55. 14. 12	53 42.39	52. 10. 59	50. 39. 9	49. 7. 9	47.35. 0
13		46. 2. 41							
13	Aldebaran.	78. 58. 32	77. 25. 51	75. 52. 58	74.19.52	72. 46. 34	71. 13. 2	69. 39. 17	68. 5.18
14		66. 31. 6	64. 56. 38	63. 21. 55	61.46.58	60. 11. 46	58. 36. 18	57. 0. 35	55.24.37
15		53. 48. 23	52. 11. 52	50. 35. 5	48.58. 3	47. 20. 45	45. 43. 11	44. 5. 22	42.27.18
16		40. 48. 59	39. 10. 25	37. 31. 38	35.52.40	34. 13. 32	32. 34. 9	30. 54. 43	29.15.16
17		27. 35. 47	25. 56. 22	24. 17. 9	22.38. 9	20. 59. 16			
17	Pollux.					62. 24. 56	60. 41. 26	58. 57. 37	57.13.28
18		55. 28. 58	53. 44. 10	51. 59. 6	50.13.45	48. 28. 8	46. 42. 15	44. 56. 8	43. 9.51
19		41. 23. 24	39. 36. 49	37. 50. 9	36. 3.27	34. 16. 39			
19	Regulus.					70. 27. 10	68. 36. 37	66. 45. 49	64.54.43
20		63. 3. 19	61. 11. 40	59. 19. 48	57.27.44	55. 35. 27	53. 42. 58	51. 50. 22	49.57.37
21		48. 4. 45	46. 11. 46	44. 18. 45	42.25.42	40. 32. 37	38. 39. 32	36. 46. 33	34.53.40

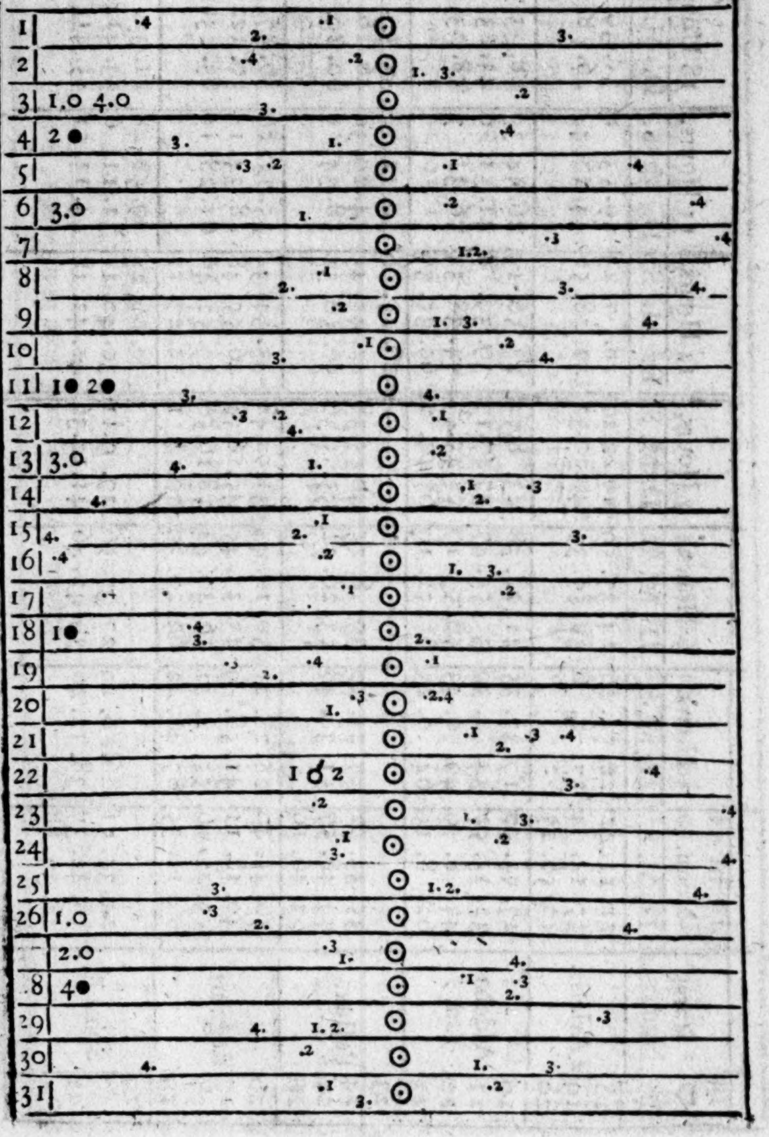
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D M. S.	D. M. S.	D. M. S.	D. M. S.	D M. S.
22	Regulus.	33. 0. 53	31. 8. 12	29. 15. 48	27.23.44	25. 32. 0	23. 40. 45	21. 50. 2	19.59.56
23		18. 10. 29							
23	Spica ♍	71. 38. 35	69. 45. 29	67. 52. 37	65.59.58	64. 7. 35	62. 15. 27	60. 23. 37	58.32. 5
24		56. 40. 51	54. 49. 57	52. 59. 24	51. 9.13	49. 19. 24	47. 29. 58	45. 40. 57	43.52.21
25		42. 4. 9	40. 16. 23	38. 29. 4	36.42.13	34. 55. 46	33. 9. 51	31. 24. 24	29.39.27
26		27. 54. 59	26. 11. 2	24. 27. 36	22.44.42	21. 2. 20			
26	Antares.					66. 29. 55	64. 47. 24	63. 5. 20	61.23.44
27		59. 42. 35	58. 1. 53	56. 21. 38	54.41.49	53. 2. 27	51. 23. 31	49. 45. 1	48. 6.56
28		46. 29. 16	44. 52. 1	43. 15. 11	41.38.45	40. 2. 43	38. 27. 4	36. 51. 48	35.16.55
29		33. 42. 25	32. 8. 17	30. 34. 30	29. 1. 4	27. 28. 0			
27	The Sun.	120. 20. 0	118. 46. 55	117. 14. 17	115.42. 6	114. 10. 21	112. 39. 2	111. 8. 7	109.37.37
28		108. 7. 32	106. 37. 50	105. 8. 31	103.39.35	102. 11. 3	100. 42. 53	99. 15. 4	97.47.37
29		96. 20. 31	94. 53. 45	93. 27. 19	92. 1.11	90. 35. 23	89. 9. 53	87. 44. 41	86.19.45
30		84. 55. 7	83. 30. 44	82. 6. 35	80.42.41	79. 19. 2	77. 55. 37	76. 32. 25	75. 9.26
31		73. 46. 39	72. 24. 4	71. 1. 38	69.39.23	68. 17. 18	66. 55. 23	65. 33. 35	64.11.55
F.1		62. 50. 24							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Regulus.	57. 24. 52	58. 58. 27	60. 31. 47	62. 4. 52	63. 37. 42	65. 10. 17	66. 42. 39	68. 14. 47
2		69. 46. 42	71. 18. 24	72. 49. 54	74. 21. 13	75. 52. 20	77. 23. 16	78. 54. 2	80. 24. 38
3		81. 55. 5							
3	Spica ♍	27. 52. 40	29. 22. 50	30. 52. 55	32. 22. 52	33. 52. 44	35. 22. 29	36. 52. 9	38. 21. 44
4		39. 51. 13	41. 20. 37	42. 49. 56	44. 19. 11	45. 48. 21	47. 17. 26	48. 46. 28	50. 15. 27
5		51. 44. 22	53. 13. 14	54. 42. 3	56. 10. 51	57. 39. 36	59. 8. 19	60. 37. 1	62. 5. 42
6		63. 34. 22							
11	The Sun.					38. 38. 20	40. 1. 54	41. 25. 38	42. 49. 30
12		44. 13. 32	45. 37. 43	47. 2. 5	48. 26. 37	49. 51. 20	51. 16. 15	52. 41. 21	54. 6. 40
13		55. 32. 11	56. 57. 54	58. 23. 50	59. 50. 1	61. 16. 24	62. 43. 1	64. 9. 54	65. 37. 1
14		67. 4. 24	68. 32. 3	69. 59. 58	71. 28. 10	72. 56. 38	74. 25. 24	75. 54. 28	77. 23. 50
15		78. 53. 30	80. 23. 30	81. 53. 49	83. 24. 28	84. 55. 26	86. 26. 45	87. 58. 25	89. 30. 26
16		91. 2. 48	92. 35. 32	94. 8. 38	95. 42. 7	97. 15. 57	98. 50. 11	100. 24. 47	101. 59. 47
17		103. 35. 10	105. 10. 56	106. 47. 6	108. 23. 39	110. 0. 35	111. 37. 56	113. 15. 39	114. 53. 47
18		116. 32. 17	118. 11. 11	119. 50. 27	121. 30. 7				
16	α Pegaſi.	38. 43. 31	40. 16. 14	41. 49. 45	43. 24. 4	44. 59. 7	46. 34. 55	48. 11. 23	49. 48. 32
17		51. 26. 20	53. 4. 44	54. 43. 44	56. 23. 18	58. 3. 28	59. 44. 10	61. 25. 24	63. 7. 9
18		64. 49. 24							

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S	D. M. S.	D. M. S.	D. M. S.	D. M. S.
18	α Arietis.	21. 11. 42	22. 54. 26	24. 37. 59	26.22.20	28. 7. 23	29. 53. 8	31. 39. 32	33.26.31
19		35. 14. 4	37. 2. 6	38. 50. 35	40.39.32	42. 28. 56	44. 18. 44	46. 8. 54	47.59.26
20		49. 50. 17							
20	Aldeba-ran.	17. 53. 50	19. 37. 35	21. 22. 38	23. 8. 53	24. 56. 13	26. 44. 33	28. 33. 36	30.23.24
21		32. 13. 52	34. 4. 39	35. 55. 47	37.47.17	39. 39. 8	41. 31. 9	43. 23. 19	45.15.40
22		47. 8. 9	49. 0. 43	50. 53. 19	52.45.57	54. 38. 34	56. 31. 7	58. 23. 36	60.15.58
23		62. 8. 15	64. 0. 23	65. 52. 19	67.44. 3	69. 35. 37			
23	Pollux.					28. 25. 50	30. 12. 34	31. 59. 32	33.46.39
24		35. 33. 52	37. 21. 10	39. 8. 25	40.55.38	42. 42. 45	44. 29. 39	46. 16. 18	48. 2.44
25		49. 48. 57	51. 34. 48	53. 20. 22	55. 5.36	56. 50. 31	58. 35. 5	60. 19. 13	62. 2.57
26		63. 46. 19							
25	Regulus.	26. 45. 40	28. 28. 21	30. 10. 44	31.52.48	33. 34. 34	35. 15. 59	36. 57. 4	38.37.47
27		40. 18. 11	41. 58. 9	43. 37. 45	45.16.58	46. 55. 48	48. 34. 14	50. 12. 18	51.49.58
28		53. 27. 16	55. 4. 11	56. 40. 44	58.16.56	59. 52. 46	61. 28. 13	63. 3. 21	64.38. 8
29		66. 12. 35	67. 46. 42	69. 20. 30	70.54. 1	72. 27. 12			
29	Spica ♍					18. 26. 25	19. 58. 48	21. 31. 1	23. 3. 1
30		24. 34. 51	26. 6. 29	27. 37. 56	29. 9.11	30. 40. 15	32. 11. 6	33. 41. 47	35.12.17
31		36. 42. 37	38. 12. 46	39. 42. 46	41.12.36	42. 42. 18	44. 11. 51	45. 41. 17	47.10.36
F. 1		48. 39. 48							

Configurations of the SATELLITES of JUPITER at Nine o'Clock in the Evening.



Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	F.	
2	Sa.	*Purif. of B.V. Mary.*
3	*Su.*	*Quinquageſ. Sun.* Blas.
4	M.	On mor. of Purif. 3 ret.
5	Tu.	Agatha.
6	W.	*Aſh-Wedneſday.*
7	Th.	
8	F.	
9	Sa.	In 8 days of Purif. 4 ret.
10	*Su.*	*1ſt Sunday in Lent.*
11	M.	Cam. Term div. n.
12	Tu.	Hilary Term ends.
13	W.	
14	Th.	Valentine.
15	F.	
16	Sa.	
17	*Su.*	*2d Sunday in Lent.*
18	M.	
19	Tu.	
20	W.	
21	Th.	
22	F.	
23	Sa.	*Pr. Octavius born.*
24	*Su.*	*3d Sun. in Lent. St. Mat-*
25	M.	*[thias. Pr. Adol. Fr. bo.*
26	Tu.	
27	W.	
28	Th.	
29	F.	

Phaſes of the Moon.

	D. H. M.
New Moon —	6. 18. 53
Firſt Quarter –	14. 8. 56
Full Moon – –	21. 0. 49
Laſt Quarter –	28. 8. 16

Other Phenomena.

D. H. M.	
1.18. 0	☾ θ Ophiuchi.
19.54	☾ β Ophiu.
3.18. 6	☾ ο ♐
20.40	☾ π ♐
6.	♀ φ ♒ d.Lat.19′
10.	♅ Stationary.
11.23.39	☾ ν ♓.
15.20.29	☾ ♃.
16.	♂ Stationary.
9.48	☾ 132 ♉
19.41	☾ ν ♊
22.47	☾ μ ♊
17.14.45	☾ ζ ♊
18. 9.38	☉ enters ♓.
20. 2.11	☾ ξ ♌
6.24	☾ ο ♌
14.36	☾ π ♌
22. 7.51	☾ e ♌
23.	☿ φ ♒ d.Lat.3′.
27.11.43	☾ δ ♏
29. 3.12	☾ β Ophiuchi.

FEBRUARY 1788. II.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. South.	Equat. of Time. Add.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	F.	10. 12.24.27	20.59.30,5	17. 5.57	14. 1,3	
2	Sa.	10. 13.25.18	21. 3.34,5	16.48.43	14. 8,7	7,4
3	*Su.*	10. 14.26. 8	21. 7.37,7	16.31. 9	14.15,4	6,7
4	M.	10. 15.26.57	21.11.40,2	16.13.20	14.21,2	5,8
5	Tu.	10. 16.27.45	21.15.41,7	15.55.13	14.26,2	5,0
6	W.	10. 17.28.32	21.19.42,5	15.36.50	14.30,4	4,2
7	Th.	10. 18.29.17	21.23.42,5	15.18.12	14.33,9	3,5
8	F.	10. 19.30. 1	21.27.41,7	14.59.17	14.36,6	2,7
9	Sa.	10. 20.30.44	21.31.40,0	14.40. 7	14.38,4	1,8
10	*Su.*	10. 21.31.25	21.35.37,6	14.20.43	14.39,3	0,9
11	M.	10. 22.32. 4	21.39.34,4	14. 1. 4	14.39,5	0,2
12	Tu.	10. 23.32.41	21.43.30,3	13.41.13	14.38,9	0,6
13	W.	10. 24.33.16	21.47.25,5	13.21. 7	14.37,5	1,4
14	Th.	10. 25.33.50	21.51.19,9	13. 0.49	14.35,3	2,2
15	F.	10. 26.34.22	21.55.13,5	12.40.18	14.32,4	2,9
16	Sa.	10. 27.34.51	21.59. 6,4	12.19.36	14.28,7	3,7
17	*Su.*	10. 28.35.19	22. 2.58,5	11.58.41	14.24,3	4,4
18	M.	10. 29.35.45	22. 6.49,9	11.37.36	14.19,2	5,1
19	Tu.	11. 0.36. 9	22.10.40,6	11.16.19	14.13,4	5,8
20	W.	11. 1.36.30	22.14.30,6	10.54.53	14. 6,9	6,5
21	Th.	11. 2.36.51	22.18.20,0	10.33.15	13.59,7	7,2
22	F.	11. 3.37.10	22.22. 8,7	10.11.29	13.51,8	7,9
23	Sa.	11. 4.37.27	22.25.56,8	9.49.33	13.43,3	8,5
24	*Su.*	11. 5.37.42	22.29.44.3	9.27.28	13.34,3	9,0
25	M.	11. 6.37.56	22.33.31,1	9. 5.15	13.24,7	9,6
26	Tu.	11. 7.38. 8	22.37.17,4	8.42.53	13.14,5	10,2
27	W.	11. 8.38.19	22.41. 2,2	8.20.24	13. 3,7	10,8
28	Th.	11. 9.38.28	22.44.48,5	7.57.48	12.52,4	11,3
29	F.	11. 10 38.36	22.48.33,2	7.35. 4	12.40,6	11,8

Days.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 16,6	1. 8,1	2. 32,2	9.993807	8. 23. 40
7	16. 15,6	1. 7,4	2. 31,8	9.994269	8. 23. 21
13	16. 14,4	1. 6,8	2. 31,5	9.994766	8. 23. 2
19	16. 13,1	1. 6,1	2. 31,0	9.995318	8. 22. 43
25	16. 11,8	1. 5,6	2. 30,5	9.995939	8. 22. 24

Eclipſes of the SATELLITES of JUPITER.

I. Satellite. Emerſions.		II. Satellite. Emerſions.		III. Satellite.		
Days	H. M. S.	Days	H. M. S.	Days	H. M. S.	
*1	15. 6. 34	1	20. 47. 27	*7	13. 24. 37	I
*3	9. 35. 8	*5	10. 6. 14	7	16. 11. 49	E
5	4. 3. 46	8	23. 25. 5	14	17. 24. 50	I
6	22. 32. 26	*12	12. 44. 8	14	20. 13. 11	E
8	17. 1. 9	16	2. 3. 18	21	21. 25. 43	I
*10	11. 29. 55	19	15. 22. 35	22	0. 15. 13	E
*12	5. 58. 43	23	4. 42. 0	29	1. 27. 9	I
14	0. 27. 35	26	18. 1. 29	29	4. 17. 48	E
15	18. 56. 28					
				IV. Satellite.		
*17	13. 25. 25					
*19	7. 54. 26					
21	2. 23. 25			*14	13. 9. 21	I
22	20. 52. 30			14	14. 36. 31	E
24	15. 21. 32					
*26	9. 50. 41					
28	4. 19. 48					
29	22. 48. 59					

Days.	Heliocentric Longitude. S. D. M.	Heliocentric Latitude. D. M.	Geocentric Longitude. S. D. M.	Geocentric Latitude. D. M.	Declination. D. M.	Paſſage over Merid. H. M.
			MERCURY. Sup. ☌ 11^{d}. $17\frac{1}{4}^{h}$.			
1	9. 17. 23	6. 10 S	10. 4. 41	1. 58 S	21. 1 S	23. 34
4	9. 26. 37	6. 37	10. 9. 43	2. 3	19. 49	23. 42
7	10. 6. 23	6. 54	10. 14. 53	2. 5	18. 23	23. 51
10	10. 16. 49	7. 0	10. 20. 9	2. 3	16. 44	☌
13	10. 28. 4	6. 51	10. 25. 33	1. 56	14. 51	0. 6
16	11. 10. 17	6. 23	11. 1. 3	1. 46	12. 46	0. 16
19	11. 23. 40	5. 32	11. 6. 39	1. 30	10. 28	0. 25
22	0. 8. 19	4. 17	11. 12. 19	1. 8	8. 0	0. 34
25	0. 24. 20	2. 35	11. 17. 56	0. 41	5. 24	0. 43
28	1. 11. 39	0. 31	11. 23. 24	0. 8	2. 45	0. 51
			VENUS.			
1	0. 13. 26	2. 58 S	11. 7. 46	1. 27 S	10. 1 S	1. 40
7	0. 23. 0	2. 40	11. 15. 12	1. 20	7. 4	1. 44
13	1. 2. 35	2. 17	11. 22. 37	1. 9	4. 0	1. 47
19	1. 12. 11	1. 50	11. 29. 59	0. 57	0. 53 S	1. 51
25	1. 21. 48	1. 19	0. 7. 20	0. 42	2. 16 N	1. 54
			MARS.			
1	3. 28. 37	1. 45 N	3. 9. 33	3. 58 N	27. 5 N	9. 41
7	4. 1. 19	1. 46	3. 8. 41	3. 50	27. 1	9. 13
13	4. 4. 1	1. 48	3. 8. 17	3. 41	26. 54	8. 48
19	4. 6. 41	1. 49	3. 8. 22	3. 32	26. 44	8. 26
25	4. 9. 21	1. 50	3. 8. 52	3. 22	26. 32	8. 5
			JUPITER.			
1	2. 25. 50	0. 18 S	2. 16. 41	0. 20 S	22. 28 N	8. 1
7	2. 26. 21	0. 17	2. 16. 34	0. 19	22. 29	7. 37
13	2. 26. 52	0. 16	2. 16. 35	0. 18	22. 30	7. 13
19	2. 27. 23	0. 16	2. 16. 42	0. 17	22. 31	6. 51
25	2. 27. 53	0. 15	2. 16. 57	0. 16	22. 34	6. 29
			SATURN. ☌ 19^{d}. $20\frac{1}{2}^{h}$.			
1	11. 0. 51	1. 35 S	10. 29. 11	1. 26 S	13. 7 S	1. 8
7	11. 1. 3	1. 35	10. 29. 54	1. 27	12. 52	0. 46
13	11. 1. 14	1. 35	11. 0. 38	1. 27	12. 37	0. 25
19	11. 1. 25	1. 36	11. 1. 22	1. 27	12. 21	0. 5
25	11. 1. 37	1. 36	11. 2. 5	1. 27	12. 6	23. 42

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	F.	8. 9.34.34	8. 15.29.43	1.23.54	0.52.34 S
2	Sa.	8. 21.23.32	8. 27.16.35	0.20.51 S	0.11. 0 N
3	*Su.*	9. 3. 9.23	9. 9. 2.28	0.42.41 N	1.13.53
4	M.	9. 14.56.14	9. 20.51. 7	1.44.19	2.13.40
5	Tu.	9. 26.47.24	10. 2.45.25	2.41.38	3. 7.55
6	W.	10. 8.45.24	10. 14.47.30	3.32.13	3.54.15
7	Th.	10. 20.51.56	10. 26.58.46	4.13.44	4.30.25
8	F.	11. 3. 8. 6	11. 9.20. 3	4.44. 3	4.54.26
9	Sa.	11. 15.34.40	11. 21.52. 1	5. 1 21	5. 4.42
10	*Su.*	11. 28.12.14	0. 4.35.20	5. 4.19	5. 0. 9
11	M.	0. 11. 1.28	0. 17.30.49	4.52.10	4.40.20
12	Tu.	0. 24. 3.28	1. 0.39.33	4.24.46	4. 5.31
13	W.	1. 7.19.18	1. 14. 2.52	3.42.45	3.16.42
14	Th.	1. 20.50.26	1. 27.42. 8	2.47.36	2.15.47
15	F.	2. 4.38. 6	2. 11.38.25	1.41.38	1. 5.37 N
16	Sa.	2. 18.43. 6	2. 25.52. 2	0.28.13 N	0. 9.57 S
17	*Su.*	3. 3. 5. 4	3. 10.21.53	0.48.19 S	1.26.10
18	M.	3. 17.41.59	3. 25. 4.50	2. 2.52	2.37.39
19	Tu.	4. 2.29.34	4. 9.55.24	3. 9.53	3.38.56
20	W.	4. 17.21.13	4. 24.46. 4	4. 4.14	4.25.18
21	Th.	5. 2. 8.46	5. 9.28.16	4.41.48	4.53.33
22	F.	5. 16.43.31	5. 23.53.45	5. 0.23	5. 2.23
23	Sa.	6. 0.58.11	6. 7.56.18	4.59.41	4.52.32
24	*Su.*	6. 14.47.42	6. 21.32.16	4.41.14	4.26. 9
25	M.	6. 28. 9.56	7. 4.40.58	4. 7.42	3.46.17
26	Tu.	7. 11. 5.34	7. 17.24.14	3.22.19	2.56.13
27	W.	7. 23.37.28	7. 29.45.49	2.28.20	1.59. 4
28	Th.	8. 5.49.55	8. 11.50.31	1.28.46	0.57.45 S
29	F.	8. 17.48.13	8. 23.43.48	0.26.22 S	0. 5. 7 N

FEBRUARY 1788. VI.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſsage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſcen. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	F.	26	20. 11	247. 41	254. 9	23. 18 S	23. 33 S
2	Sa.	27	21. 0	260. 36	267. 2	23. 32	23. 15
3	*Su.*	28	21. 48	273. 25	279. 45	22. 43	21. 56
4	M.	29	22. 35	286. 1	292. 11	20. 54	19. 39
5	Tu.	30	23. 20	298. 17	304. 18	18. 11	16. 31
6	W.	1	☌	310. 14	316. 5	14. 41	12. 41
7	Th.	2	0. 4	321. 53	327. 38	10. 33	8. 18
8	F.	3	0. 47	333. 22	339. 4	5. 57	3. 32 S
9	Sa.	4	1. 30	344. 47	350. 32	1. 4 S	1. 26 N
10	*Su.*	5	2. 14	356. 20	2. 13	3. 56 N	6. 24
11	M.	6	2. 59	8. 12	14. 19	8. 50	11. 11
12	Tu.	7	3. 46	20. 36	27. 3	13. 27	15. 33
13	W.	8	4. 37	33. 42	40. 33	17. 28	19. 12
14	Th.	9	5. 32	47. 37	54. 53	20. 41	21. 52
15	F.	10	6. 29	62. 20	69. 57	22. 45	23. 17
16	Sa.	11	7. 30	77. 41	85. 29	23. 27	23. 14
17	*Su.*	12	8. 31	93. 20	101. 9	22. 38	21. 38
18	M.	13	9. 31	108. 54	116. 32	20. 16	18. 33
19	Tu.	14	10. 29	124. 1	131. 22	16. 33	14. 16
20	W.	15	11. 24	138. 33	145. 34	11. 46	9. 7
21	Th.	16	12. 17	152. 27	159. 12	6. 20	3. 30 N
22	F.	17	13. 8	165. 50	172. 24	0. 38 N	2. 12 S
23	Sa.	18	13. 57	178. 54	185. 21	4. 58 S	7. 38
24	*Su.*	19	14. 47	191. 47	198. 12	10. 9	12. 31
25	M.	20	15. 36	204. 38	211. 5	14. 41	16. 39
26	Tu.	21	16. 26	217. 33	224. 3	18. 23	19. 52
27	W.	22	17. 16	230. 34	237. 7	21. 6	22. 4
28	Th.	23	18. 6	243. 39	250. 11	22. 46	23. 11
29	F.	24	18. 56	256. 42	263. 10	23. 21	23. 14

VII. FEBRUARY 1788.

Days of the Month.	Days of the Week.	Semidr. ☽ at Noon.	Semidr. ☽ at Midnight.	Hor.Par. ☽ at Noon.	Hor.Par ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	F.	14. 51	14. 49	54. 30	54. 22	5189	5199
2	Sa.	14. 47	14. 46	54. 15	54. 11	5209	5214
3	*Su.*	14. 45	14. 45	54. 9	54. 9	5217	5217
4	M.	14. 46	14. 47	54. 11	54. 14	5214	5210
5	Tu.	14. 48	14. 50	54. 18	54. 24	5205	5197
6	W.	14. 52	14. 54	54. 32	54. 40	5186	5175
7	Th.	14. 56	14. 59	54. 50	55. 0	5162	5149
8	F.	15. 2	15. 5	55. 11	55. 23	5134	5119
9	Sa.	15. 9	15. 13	55. 36	55. 49	5102	5085
10	*Su.*	15. 17	15. 21	56. 4	56. 19	5065	5046
11	M.	15. 25	15. 30	56. 35	56. 52	5026	5004
12	Tu.	15. 34	15. 39	57. 9	57. 27	4983	4960
13	W.	15. 44	15. 50	57. 46	58. 6	4936	4911
14	Th.	15. 55	16. 1	58. 26	58. 45	4886	4863
15	F.	16. 6	16. 11	59. 4	59. 22	4839	4817
16	Sa.	16. 16	16. 20	59. 40	59. 57	4795	4775
17	*Su.*	16. 24	16. 27	60. 11	60. 23	4758	4743
18	M.	16. 30	16. 32	60. 33	60. 39	4732	4724
19	Tu.	16. 33	16. 32	60. 43	60. 42	4719	4721
20	W.	16. 31	16. 29	60. 37	60. 28	4727	4737
21	Th.	16. 25	16. 21	60. 16	60. 0	4752	4771
22	F.	16. 16	16. 10	59. 41	59. 19	4794	4821
23	Sa.	16. 3	15. 56	58. 55	58. 29	4850	4882
24	*Su.*	15. 49	15. 42	58. 3	57. 37	4915	4947
25	M.	15. 35	15. 28	57. 10	56. 44	4981	5014
26	Tu.	15. 21	15. 15	56. 20	55. 57	5045	5075
27	W.	15. 9	15. 4	55. 37	55. 18	5100	5125
28	Th.	15. 0	14. 56	55. 1	54. 47	5148	5166
29	F.	14. 53	14. 51	54. 36	54. 27	5181	5193

Distances of ☽'s Center from Sun, and from Stars east of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M S.	D. M. S	D. M. S.	D. M. S.
1	The Sun.	62. 50. 24	61. 29. 0	60. 7. 41	58.46.30	57. 25. 24	56. 4. 24	54. 43. 27	53.22.37
2		52. 1. 49	50. 41. 5	49. 20. 23	47.59.45	46. 39. 9	45. 18. 35	43. 58. 3	42.37.32
3		41. 17. 3							
8	α Arietis.					55. 4. 42	53. 32. 24	51. 59. 59	50.27.26
9		48. 54. 47	47. 22. 1	45. 49. 7	44.16. 7	42. 43. 1	41. 9. 47	39. 36. 27	38. 3. 3
10		36. 29. 34	34. 55. 58	33. 22. 22	31.48.44	30. 15. 5	28. 41. 28	27. 7. 53	25.34.23
11		24. 0. 59							
11	Aldebaran.	56. 41. 11	55. 5. 30	53. 29. 39	51.53.39	50. 17. 28	48. 41. 7	47. 4. 38	45.28. 0
12		43. 51. 12	42. 14. 15	40. 37. 12	39. 0. 1	37. 22. 43	35. 45. 16	34. 7. 48	32.30.17
13		30. 52. 46	29. 15. 17	27. 37. 52	26. 0.33	24. 23. 22			
13	Pollux.					66. 3. 25	64. 23. 18	62. 42. 59	61. 2.25
14		59. 21. 38	57. 40. 37	55. 59. 25	54.18. 0	52. 36. 24	50. 54. 34	49. 12. 34	47.30.25
15		45. 48. 7	44. 5. 38	42. 23. 4	40 40.26	38. 57. 43	37. 14. 59	35. 32. 17	33.49.36
16		32. 6. 58							
16	Regulus.	68. 10. 36	66. 23. 50	64. 36. 48	62.49.31	61. 1. 59	59. 14. 13	57. 26. 13	55.38. 2
17		53. 49. 36	52. 0. 58	50. 12. 10	48.23.12	46. 34. 4	44. 44. 46	42. 55. 22	41. 5.52
18		39. 16. 16	37. 26. 33	35. 36. 50	33.47. 7	31. 57. 24	30. 7. 47	28. 18. 16	26.28.54
19		24. 39. 41							

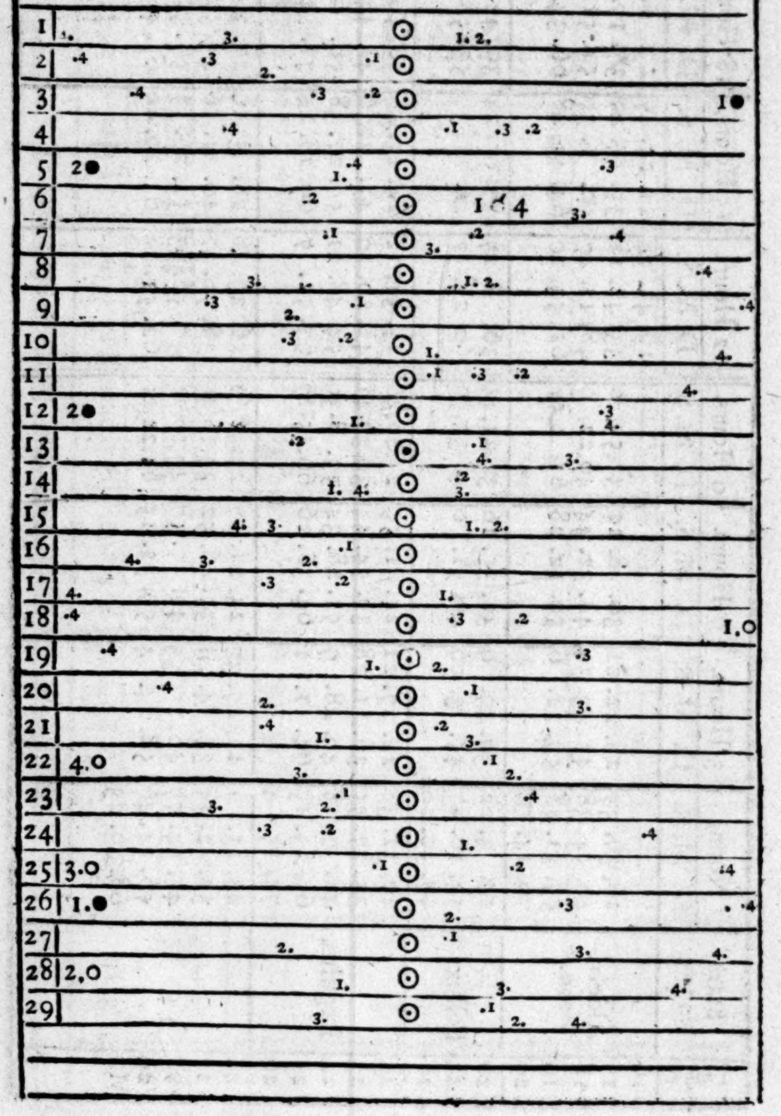
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M S	D. M. S.	D. M. S.	D. M. S.	D. M. S
19	Spica ♍	78. 18. 50	76. 27. 26	74. 36. 3	72.44.40	70. 53. 17	69. 1. 56	67. 10. 38	65.19.24
20		63. 28. 13	61. 37. 9	59. 46. 12	57.55.23	56. 4. 41	54. 14. 9	52. 23. 49	50.33.40
21		48. 43. 43	46. 54. 0	45. 4. 32	43.15.20	41. 26. 24	39. 37. 46	37. 49. 27	36. 1.27
22		34. 13. 46	32. 26. 25	30. 39. 27	28.52.52	27. 6. 41	25. 20. 55	23. 35. 35	21.50.42
23		20. 6. 18							
23	Antares.	65. 35. 13	63. 50. 39	62. 6. 29	60.22.44	58. 39. 23	56. 56. 27	55. 13. 56	53.31.50
24		51. 50. 9	50. 8. 53	48. 28. 3	46.47.38	45. 7. 39	43. 28. 6	41. 48. 58	40.10.17
25		38. 32. 0	36. 54. 8	35. 16. 41	33.39.40	32. 3. 4	30. 26. 54	28. 51. 9	27.15.51
26		25. 40. 58							
26	α Aquilæ	80. 58. 46	79. 33. 39	78. 8. 57	76.44.39	75. 20. 46	73. 57. 19	72. 34. 18	71.11.43
27		69. 49. 35	68. 27. 54	67. 6. 42	65.45.59	64. 25. 44	63. 5. 59	61. 46. 46	60.28. 5
28		59. 9. 56	57. 52. 21	56. 35. 22	55.18.58	54. 3. 10			
25	The Sun.					122. 22. 20	120. 53. 37	119. 25. 16	117.57.15
26		116. 29. 36	115. 2. 17	113. 35. 17	112. 8.37	110. 42. 16	109. 16. 15	107. 50. 32	106.25. 7
27		105. 0. 0	103. 35. 9	102. 10. 35	100.46.16	99. 22. 14	97. 58. 26	96. 34. 53	95.11.33
28		93. 48. 28	92. 25. 34	91. 2. 52	89.40.21	88. 18. 2	86. 55. 54	85. 33. 55	84.12. 5
29		82. 50. 24	81. 28. 50	80. 7. 24	78.46. 4	77. 24. 51	76. 3. 44	74. 42. 42	73.21.44
M1		72. 0. 52							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Spica ♍	48. 39. 47	50. 8. 52	51. 37. 53	53. 6.48	54. 35. 38	56. 4. 24	57. 33. 6	59. 1.45
2		60. 30. 20	61. 58. 52	63. 27. 24	64.55.53	66. 24. 21			
2	Antares.					20. 59. 4	22. 26. 48	23. 54. 37	25.22.30
3		26. 50. 28	28. 18. 30	29. 46. 36	31.14.47	32. 43. 1	34. 11. 20	35. 39. 42	37. 8. 9
4		38. 36. 40	40. 5. 14	41. 33. 54	43. 2.40	44. 31. 29	46. 0. 24	47. 29. 24	48.58.30
5		50. 27. 41							
10	The Sun.			39. 52. 53	41.20.14	42. 47. 49	44. 15. 37	45. 43. 38	47.11.54
11		48. 40. 22	50. 9. 4	51. 38. 1	53. 7.11	54. 36. 36	56. 6. 14	57. 36. 5	59. 6.12
12		60. 36. 32	62. 7. 7	63. 37. 57	65. 9. 2	66. 40. 22	68. 11. 57	69. 43. 48	71.15.54
13		72. 48. 16	74. 20. 54	75. 53. 48	77.26.59	79. 0. 25	80. 34. 8	82. 8. 7	83.42.23
14		85. 16. 56	86. 51. 46	88. 26. 52	90. 2.16	91. 37. 57	93. 13. 55	94. 50. 10	96.26.42
15		98. 3. 31	99. 40. 37	101. 18. 1	102.55.41	104. 33. 38	106. 11. 52	107. 50. 23	109.29. 9
16		111. 8. 12	112. 47. 31	114. 27. 4	116. 6.53	117. 46. 57	119. 27. 15	121. 7. 47	
14	α Arietis.					24. 6. 32	25. 47. 7	27. 28. 18	29.10. 4
15		30. 52. 22	32. 35. 12	34. 18. 32	36. 2.19	37. 46. 33	39. 31. 10	41. 16. 9	43. 1.31
16		44. 47. 16	46. 33. 21	48. 19. 46	50. 6.29	51. 53. 30			

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
16	Aldebaran.					19. 43. 54	21. 25. 45	23. 8. 35	24. 52. 21
17		26. 36. 57	28. 22. 21	30. 8. 22	31. 55. 0	33. 42. 12	35. 29. 45	37. 17. 40	39. 5. 58
18		40. 54. 38	42. 43. 34	44. 32. 44	46. 22. 9	48. 11. 47	50. 1. 35	51. 51. 31	53. 41. 36
19		55. 31. 48	57. 22. 6	59. 12. 28	61. 2. 52	62. 53. 20	64. 43. 48	66. 34. 15	68. 24. 38
20		70. 14. 59							
20	Pollux.	29. 3. 22	30. 49. 9	32. 35. 16	34. 21. 44	36. 8. 27	37. 55. 24	39. 42. 27	41. 29. 36
21		43. 16. 47	45. 3. 56	46. 51. 0	48. 37. 59	50. 24. 52	52. 11. 37	53. 58. 7	55. 44. 25
22		57. 30. 29							
22	Regulus.	20. 32. 38	22. 17. 21	24. 1. 59	25. 46. 36	27. 31. 12	29. 15. 40	30. 59. 56	32. 44. 2
23		34. 27. 55	36. 11. 28	37. 54. 44	39. 37. 41	41. 20. 20	43. 2. 36	44. 44. 31	46. 26. 5
24		48. 7. 18	49. 48. 7	51. 28. 34	53. 8. 39	54. 48. 21	56. 27. 38	58. 6. 33	59. 45. 5
25		61. 23. 15	63. 1. 1	64. 38. 26	66. 15. 27	67. 52. 7	69. 28. 24	71. 4. 19	72. 39 53
26		74. 15. 4							
26	Spica ♍	20. 13. 1	21. 47. 37	23. 21. 57	24. 56. 1	26. 29. 48	28. 3. 19	29. 36. 33	31. 9. 32
27		32. 42. 15	34. 14. 41	35. 46. 52	37. 18. 49	38. 50. 30	40. 21. 56	41. 53. 9	43. 24. 10
28		44. 54. 57	46. 25. 33	47. 55. 57	49. 26. 10	50. 56. 13	52. 26. 3	53. 55. 47	55. 25. 20
29		56. 54. 46	58. 24. 4	59. 53. 15	61. 22. 20	62. 51. 18	64. 20. 10	65. 48. 59	67. 17. 43
M1		68. 46. 23							

Configurations of the SATELLITES of JUPITER at Eight o' Clock in the Evening.



Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Sa.	David.
2	*Su.*	*4th Su. in Lent. Midl. Su.*
3	M.	[Chad.
4	Tu.	
5	W.	
6	Th.	
7	F.	Perpetua.
8	Sa.	
9	*Su.*	*5th Sunday in Lent.*
10	M.	
11	Tu.	
12	W.	Greg. M.
13	Th.	
14	F.	Camb. Term ends.
15	Sa.	Oxford Term ends.
16	*Su.*	*6th Sunday in Lent. Palm*
17	M.	*[Sunday.*
18	Tu.	Edw. K. of W. Saxons.
19	W.	
20	Th.	
21	F.	*Good Friday.* Benedict.
22	Sa.	
23	*Su.*	*Eaſter-Day.*
24	M.	*Eaſter-Monday.*
25	Tu.	*Eaſter-Tueſday. Annun.*
26	W.	*[of V. Mary.*
27	Th.	
28	F.	
29	Sa.	
30	*Su.*	*1ſt Su. after Eaſter. Low*
31	M.	*[Sunday.*

Phaſes of the Moon.

	D. H.M.
New Moon	7. 11. 33
Firſt Quarter	14. 17. 19
Full Moon	21. 12. 0
Laſt Quarter	29. 4. 25

Other Phenomena.

D.H.M.	
2. 1,17	☾ ο ♐
3.51	☾ π ♐
3.	♀ ζ ♓ d. L. 6′.
10. 5.23	☾ n ♓
12. 0.15	☾ δ ♈
14. 4.44	☾ ♃ Im. ✱ 0′⅓ S. of ☾'s cent.
6. 0½	Em. ✱ 2′⅓ N,
15. 2. 8	☾ n ♊
5.18	☾ μ ♊
21.44	☾ ζ ♊
17.	☿ Stationary.
18.11. 6	☾ ξ ♌
15.26	☾ ο ♌
23.51	☾ π ♌
19.10. 3	☉ enters ♈
20.17.53	☾ e ♌
24.22.34	☾ 1 ad ι ♎
25.20.38	☾ δ ♏
27 11.30	☾ β Ophiuchi.
29.	♀ δ ♈ d.L. 43′.
9.16	☾ ο ♐
11.51	☾ π ♐

MARCH 1788.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Afc. in Time.	Sun's Declin. South.	Equat. of Time. Add.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Sa	11. 11.38.42	22.52.17,5	7.12.13	12.28,4	12,8
2	*Su.*	11. 12.38.46	22.56. 1,2	6.49.17	12.15,6	13,2
3	M.	11. 13.38.49	22.59.44,5	6.26.15	12. 2,4	13,6
4	Tu.	11. 14.38.50	23. 3.27,4	6. 3, 7	11.48,8	14,1
5	W.	11. 15.38.50	23. 7. 9,8	5.39.54	11.34,7	14,5
6	Th.	11. 16.38.48	23.10.51,9	5.16.37	11.20,2	14,9
7	F.	11. 17.38.44	23.14.33,5	4.53.15	11. 5,3	15,2
8	Sa.	11. 18.38.38	23.18.14,8	4.29.50	10.50,1	15,6
9	*Su.*	11. 19.38.30	23.21.55,7	4. 6.22	10.34,5	15,9
10	M.	11. 20.38.20	23.25.36,3	3.42.50	10.18,6	16,3
11	Tu.	11. 21.38. 8	23.29.16,6	3.19.15	10. 2,3	16,6
12	W.	11. 22.37.54	23.32.56,5	2.55.38	9.45,7	16,9
13	Th.	11. 23.37.37	23.36.36,1	2.32. 0	9.28,8	17,2
14	F.	11. 24.37.18	23.40.15,4	2. 8.21	9.11,6	17,4
15	Sa.	11. 25.36.56	23.43.54,5	1.44.41	8.54,2	17,7
16	*Su.*	11. 26.36.32	23.47.33,3	1.20.59	8.36,5	17,9
17	M.	11. 27.36. 6	23.51.11,9	0.57.17	8.18,6	18,0
18	Tu.	11. 28.35.37	23.54.50,4	0.33.36	8. 0,6	18,2
19	W.	11. 29.35. 6	23.58.28,7	0. 9.55	7.42,4	18,4
20	Th.	0. 0.34.33	0. 2. 6,8	NORTH. 0.13.45	7.24,0	18,5
21	F.	0. 1.33.58	0. 5.44,8	0.37.25	7. 5,5	18,6
22	Sa.	0. 2.33.21	0. 9.22,7	1. 1. 3	6.46,9	18,7
23	*Su*	0. 3.32.41	0.13. 0,5	1.24.39	6.28,2	18,7
24	M.	0. 4.31.59	0.16.38,3	1.48.13	6. 9,5	18,7
25	Tu.	0. 5.31.16	0.20.16,1	2.11.45	5.50,8	18,7
26	W.	0. 6.30.31	0.23.53,9	2.35.14	5.32,1	18,8
27	Th.	0. 7.29.44	0.27.31,7	2.58.40	5.13,3	18,7
28	F.	0. 8.28.55	0.31. 9,5	3.22. 2	4.54,6	18,6
29	Sa.	0. 9.28. 5	0.34.47,4	3.45.21	4.36,0	18,5
30	*Su.*	0. 10.27.13	0.38.25,4	4. 8.36	4.17,5	18,4
31	M.	0. 11.26.19	0.42. 3,5	4.31.46	3.59,1	

III. MARCH 1788.

Days.	Semidiameter of the Sun.	Time of D° passing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 10,6	1. 5,3	2. 30,1	9. 996502	8. 22. 8
7	16. 9,0	1. 4,9	2. 29,7	9. 997207	8. 21. 49
13	16. 7,4	1. 4,6	2. 29,2	9. 997909	8. 21. 30
19	16. 5,8	1. 4,4	2. 28,8	9. 998630	8. 21. 11
25	16. 4,1	1. 4,3	2. 28,3	9. 999381	8. 20. 52

Eclipses of the Satellites of JUPITER.

I. Satellite. Emerſions. Days	H. M. S.	II. Satellite. Emerſions. Days	H. M. S.
2	17. 18. 11	*1	7. 21. 6
*4	11. 47. 26	4	20. 40. 45
6	6. 16. 42	*8	10. 0. 26
8	0. 45. 59	11	23. 20. 10
9	19. 15. 17	15	12. 39. 55
11	13. 44. 37	19	1. 59. 40
*13	8. 13. 58	22	15. 19. 24
15	2. 43. 20	26	4. 39. 4
16	21. 12. 43	29	17. 58. 41
18	15. 42. 5		
*20	10. 11. 29		
22	4. 40. 53		
23	23. 10. 17		
25	17. 39. 41		
27	12. 9. 6		
29	6. 38. 29		
31	1. 7. 54		

III. Satellite.

Days	H. M. S.	
7	5. 29. 6	I
*7	8. 20. 58	E
*14	9. 31. 24	I
*14	12. 24. 22	E
21	13. 33. 55	I
21	16. 27. 56	E
28	17. 36. 30	I
28	20. 31. 35	E

IV. Satellite

Days	H. M. S.	
*2	7. 14. 3	I
*2	8. 57. 5	E
19	1. 21. 43	I
19	3. 18. 4	E

MARCH 1788. IV.

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Passage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
r. Elong. 10^d.			MERCURY.		Inf. ☌ 25^d. $23\frac{1}{2}^h$.	
1	1. 23. 47	0. 58 N	11. 26. 52	0. 16 N	1. 0 S	0. 56
4	2. 12. 33	3. 9	0. 1. 38	0. 55	1. 30 N	1. 1
7	3. 1. 28	5. 1	0. 5. 42	1. 36	3. 45	1. 4
10	3. 19. 51	6. 18	0. 8. 48	2. 16	5. 34	1. 3
13	4. 7. 9	6. 55	0. 10. 46	2. 49	6. 52	0. 58
16	4. 23. 6	6. 57	0. 11. 31	3. 15	7. 33	0. 50
19	5. 7. 37	6. 30	0. 11. 2	3. 28	7. 34	0. 37
22	5. 20. 47	5. 45	0. 9. 32	3. 26	6. 56	0. 20
25	6. 2. 47	4. 47	0. 7. 19	3. 8	5. 47	0. 2
28	6. 13. 46	3. 44	0. 4. 48	2. 36	4. 18	23. 37
31	6. 23. 56	2. 37	0. 2. 28	1. 53	2. 43	23. 19
			VENUS.			
1	1. 29 50	0. 52 S	0. 13. 26	0. 28 S	4. 53 N	1. 58
7	2. 9. 29	0. 19 S	0. 20. 43	0. 10 S	7. 56	2. 2
13	2. 19. 10	0. 16 N	0. 27. 57	0. 9 N	10. 54	2. 6
19	2. 28. 51	0. 50	1. 5. 9	0. 29	13. 43	2. 12
25	3. 8. 34	1. 22	1. 12. 17	0. 49	16. 20	2. 18
			MARS.			
1	4. 11. 34	1. 50 N	3. 9. 35	3. 14 N	26. 21 N	7. 49
7	4. 14. 13	1. 51	3. 10. 45	3. 5	26. 6	7. 32
13	4. 16. 52	1. 51	3. 12. 13	2. 56	25. 49	7. 17
19	4. 19. 30	1. 51	3. 13. 57	2. 47	25. 30	7. 2
25	4. 22. 8	1. 51	3. 15. 55	2. 38	25. 8	6. 50
			JUPITER.	□ 7^d. $0\frac{3}{4}^h$.		
1	2. 28. 19	0. 15 S	2. 17. 14	0. 15 S	22. 36 N	6. 11
7	2. 28. 50	0. 14	2. 17. 40	0. 14	22. 40	5. 51
13	2. 29. 20	0. 13	2. 18. 13	0. 13	22. 44	5. 31
19	2. 29. 51	0. 12	2. 18. 52	0. 12	22. 48	5. 12
25	3. 0. 21	0. 12	2. 19. 36	0. 11	22. 52	4. 54
			SATURN.			
1	11. 1. 47	1. 37 S	11. 2. 41	1. 28 S	11. 54 S	23. 24
7	11. 1. 58	1. 37	11. 3. 24	1. 28	11. 38	23. 6
13	11. 2. 10	1. 37	11. 4. 7	1. 29	11. 23	22. 47
19	11. 2. 21	1. 38	11. 4. 49	1. 29	11. 9	22. 27
25	11. 2. 33	1. 38	11. 5. 29	1. 30	10. 55	22. 8

MARCH 1788.

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D.M.S.
1	Sa.	8. 29.37.53	9. 5.31.16	0.36.24 N	1. 7.12 N
2	*Su.*	9. 11.24.29	9. 17.18.17	1.37.16	2. 6.15
3	M.	9. 23.13. 8	9. 29. 9.39	2.33.57	3. 0. 4
4	Tu.	10. 5. 8.13	10. 11. 9.18	3.24.20	3.46.26
5	W.	10. 17.13.12	10. 23.20.12	4. 6. 8	4.23. 9
6	Th.	10. 29.30.28	11. 5.44. 9	4.37.12	4.48. 5
7	F.	11. 12. 1.16	11. 18.21.50	4.55.33	4.59.27
8	Sa.	11. 24.45.47	0. 1.13. 2	4.59.38	4.55.57
9	*Su.*	0. 7.43.28	0. 14.16.55	4.48.26	4.37. 2
10	M.	0. 20.53.16	0. 27.32.22	4.21.50	4. 2.58
11	Tu.	1. 4.14. 5	1. 10.58.19	3.40.35	3.14.59
12	W.	1. 17.44.57	1. 24.33.59	2.46.26	2.15.19
13	Th.	2. 1.25.22	2. 8.19. 4	1.42. 1	1. 7. 2 N
14	F.	2. 15.15. 9	2. 22.13.34	0.30.49 N	0. 6. 3 S
15	Sa.	2. 29.14.22	3. 6.17.28	0.43. 5 S	1.19.37
16	*Su.*	3. 13.22.48	3. 20.30.12	1.55. 7	2.28.57
17	M.	3. 27.39.30	4. 4.50.18	3. 0.36	3.29.27
18	Tu.	4. 12. 2.13	4. 19.14.42	3.55. 3	4.16.51
19	W.	4. 26.27. 9	5. 3.38.52	4.34.34	4.47.52
20	Th.	5. 10.49. 6	5. 17.57. 6	4.56.34	5. 0.36
21	F.	5. 25. 2. 3	6. 2. 3.22	4.59.56	4.54.44
22	Sa.	6. 9. 0.16	6. 15.52.19	4.45.11	4.31.35
23	*Su.*	6. 22.39. 2	6. 29.20.13	4.14.15	3.53.38
24	M.	7. 5.55.38	7. 12.25.23	3.30. 8	3. 4.10
25	Tu.	7. 18.49.29	7. 25. 8.15	2.36.12	2. 6.39
26	W.	8. 1.22. 0	8. 7.31.13	1.35.54	1. 4.23
27	Th.	8. 13.36.20	8. 19.38. 1	0.32.26 S	0. 0.23 S
28	F.	8. 25.36.48	9. 1.33.26	0.31.25 N	1. 2.43 N
29	Sa.	9. 7.28.31	9. 13.22.49	1.33.12	2. 2.36
30	*Su.*	9. 19.16.59	9. 25.11.42	2.30.42	2.57.10
31	M.	10. 1. 7.35	10. 7. 5.23	3.21.50	3.44.23

MARCH 1788. VI.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcenſion at Noon.	☽'s Right Aſcenſ. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	Sa.	25	19. 45	269. 36	275.58	22.51 S	22.14 S
2	*Su.*	26	20. 32	282. 15	288.28	21.21	20.15
3	M.	27	21. 18	294. 36	300.39	13.56	17.25
4	Tu.	28	22. 3	306. 38	312.33	15.42	13.49
5	W.	29	22. 47	318. 24	324.13	11.47	9.37
6	Th.	30	23. 31	330. 0	335.46	7.20	4.58
7	F.	1	☌	341. 33	347.21	2.31 S	0. 1 S
8	Sa.	2	0. 15	353. 13	359. 9	2.30 N	5. 1 N
9	*Su.*	3	1. 0	5. 11	11.20	7.29	9.53
10	M.	4	1. 48	17. 37	24. 4	12.12	14.23
11	Tu.	5	2. 39	30. 41	37.28	16.24	18.13
12	W.	6	3. 33	44. 27	51.36	19.48	21. 7
13	Th.	7	4. 30	58. 55	66.22	22. 8	22.49
14	F.	8	5. 29	73. 56	81.33	23. 9	23. 8
15	Sa.	9	6. 28	89. 11	96.47	22.45	21.59
16	*Su.*	10	7. 26	104. 20	111.47	20.53	19.27
17	M.	11	8. 24	119. 7	126.19	17.42	15.41
18	Tu.	12	9. 19	133. 23	140.19	13.26	11. 0
19	W.	13	10. 11	147. 7	153.49	8.24	5.42
20	Th.	14	11. 2	160. 26	166.58	2.56 N	0. 9 N
21	F.	15	11. 52	173. 28	179.56	2.37 S	5.19 S
22	Sa.	16	12. 42	186. 23	192.51	7.56	10.25
23	*Su.*	17	13. 32	199. 20	205.51	12.45	14.53
24	M.	18	14. 23	212. 24	218.59	16.49	18.30
25	Tu.	19	15. 14	225. 36	232.14	19.56	21. 7
26	W.	20	16. 5	238. 53	245.31	22. 1	22.39
27	Th.	21	16. 55	252. 8	258.43	23. 0	23. 4
28	F.	22	17. 44	265. 14	271.41	22.52	22.25
29	Sa.	23	18. 33	278. 3	284.19	21.43	20.46
30	*Su.*	24	19. 20	290. 30	296.35	19.35	18.13
31	M.	25	20. 4	302. 35	308.31	16.39	14.54

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon.	Semid^{r}. ☽ at Midnight.	Hor. Par. ☽ at Noon,	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M, S.	M. S.	M. S.		
1	Sa.	14. 49	14. 48	54. 21	54. 18	5201	5205
2	*Su.*	14. 48	14. 48	54. 17	54. 18	5206	5205
3	M.	14. 49	14. 50	54. 21	54. 27	5201	5193
4	Tu.	14. 52	14. 55	54. 34	54. 43	5183	5171
5	W.	14. 58	15. 1	54. 54	55. 5	5157	5142
6	Th.	15. 4	15. 8	55. 18	55. 32	5125	5107
7	F.	15. 12	15. 16	55. 46	56. 0	5089	5071
8	Sa.	15. 20	15. 24	56. 15	56. 30	5051	5032
9	*Su.*	15. 28	15. 32	56. 45	57. 0	5013	4994
10	M.	15. 36	15. 40	57. 15	57. 30	4975	4956
11	Tu.	15. 44	15. 48	57. 44	57. 58	4938	4921
12	W.	15. 51	15. 55	58. 11	58. 24	4905	4889
13	Th.	15. 58	16. 2	58. 37	58. 49	4872	4858
14	F.	16. 5	16. 7	59. 0	59. 10	4844	4832
15	Sa.	16. 10	16. 12	59. 20	59. 28	4820	4810
16	*Su.*	16. 14	16. 16	59. 36	59. 42	4800	4793
17	M.	16. 17	16. 18	59. 46	59. 48	4788	4786
18	Tu.	16. 18	16. 17	59. 48	59. 46	4786	4788
19	W.	16. 16	16. 14	59. 41	59. 34	4794	4802
20	Th.	16. 11	16. 8	59. 25	59. 13	4813	4828
21	F.	16. 4	15. 59	58. 58	58. 41	4846	4867
22	Sa.	15. 54	15. 49	58. 22	58. 2	4891	4916
23	*Su.*	15. 43	15. 37	57. 41	57. 19	4942	4970
24	M.	15. 31	15. 25	56. 57	56. 35	4998	5026
25	Tu.	15. 19	15. 14	56. 14	55. 54	5053	5079
26	W.	15. 9	15. 4	55. 35	55. 18	5103	5125
27	Th.	15. 0	14. 57	55. 3	54. 51	5145	5161
28	F.	14. 54	14. 52	54. 40	54. 32	5175	5186
29	Sa.	14. 50	14. 49	54. 26	54. 23	5194	5198
30	*Su.*	14. 49	14. 50	54. 23	54. 25	5198	5195
31	M.	14. 51	14. 53	54. 30	54. 36	5189	5181

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	The Sun.	72. 0. 52	70. 40. 1	69. 19. 13	67. 58. 28	66. 37. 45	65. 17. 4	63. 56. 23	62. 35. 43
2		61. 15. 3	59. 54. 21	58. 33. 38	57. 12. 53	55. 52. 6	54. 31. 17	53. 10. 25	51. 49. 30
3		50. 28. 32	49. 7. 30	47. 46. 23	46. 25. 11	45. 3. 55	43. 42. 34	42. 21. 8	40. 59. 36
4		39. 37. 59							
9	Aldebaran.	59. 55. 2	58. 18. 11	56. 41. 10	55. 3. 59	53. 26. 38	51. 49. 8	50. 11. 31	48. 33. 45
10		46. 55. 51	45. 17. 49	43. 39. 42	42. 1. 29	40. 23. 10	38. 44. 46	37. 6. 20	35. 27. 53
11		33. 49. 24	32. 10. 54	30. 32. 28	28. 54. 10	27. 16. 3	25. 38. 10	24. 0. 36	22. 23. 21
12		20. 46. 25							
12	Pollux.	62. 25. 55	60. 45. 24	59. 4. 45	57. 23. 59	55. 43. 8	54. 2. 12	52. 21. 11	50. 40. 6
13		48. 58. 59	47. 17. 50	45. 36. 38	43. 55. 27	42. 14. 18	40. 33. 12	38. 52. 9	37. 11. 11
14		35. 30. 19							
14	Regulus.	71. 38. 33	69. 54. 1[illegible]	68. 9. 48	66. 25. 12	64. 40. 27	62. 55. 34	61. 10. 33	59. 25. 25
15		57. 40. 10	55. 54. 48	54. 9. 20	52. 23. 46	50. 38. 6	48. 52. 20	47. 6. 29	45. 20. 34
16		43. 34. 34	41. 48. 31	40. 2. 26	38. 16. 20	36. 30. 13	34. 44. 3	32. 57. 57	31. 11. 55
17		29. 25. 58	27. 40. 11	25. 54. 35	24. 9. 9	22. 23. 55			
17	Spica ♍					75. 58. 5	74. 10. 16	72. 22. 25	70. 34. 33
18		68. 46. 41	66. 58. 48	65. 10. 55	63. 23. 2	61. 35. 11	59. 47. 21	57. 59. 34	56. 11. 50
19		54. 24. 9	52. 36. 32	50. 49. 1	49. 1. 36	47. 14. 16	45. 27. 3	43. 39. 58	41. 53. 2

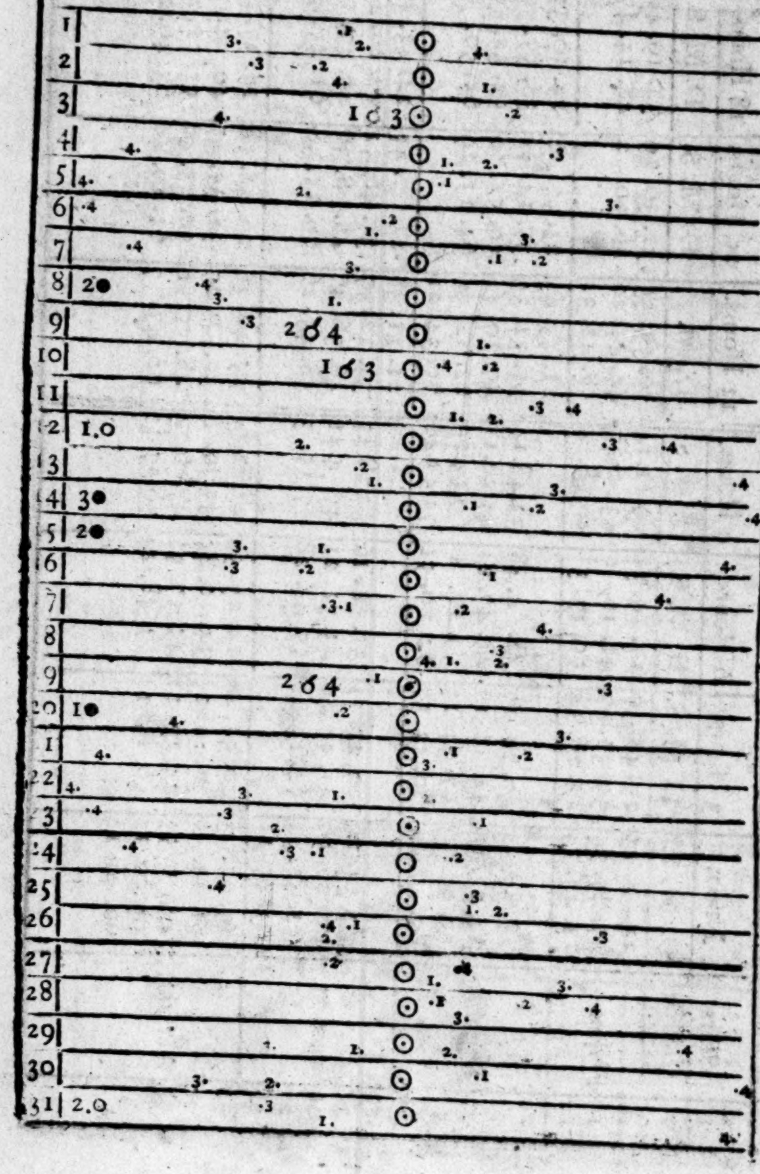
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
20	Spica ♍	40. 6. 14	38. 19. 36	36. 33. 8	34.46.52	33. 0. 48	31. 14. 57	29. 29. 20	27.43.58
21		25. 58. 51	24. 14. 1	22. 29. 30	20.45.18	19. 1. 27			
21	Antares.					64. 30. 46	62. 46. 39	61. 2. 51	59.19.20
22		57. 36. 11	55. 53. 13	54. 10. 36	52.28.18	50. 46. 20	49. 4. 41	47. 23. 22	45.42.23
23		44. 1. 45	42. 21. 27	40. 41. 31	39. 1.56	37. 22. 42	35. 43. 50	34. 5. 21	32.27.16
24		30. 49. 34	29. 12. 16	27. 35. 23	25.58.55	24. 22. 52			
24	α Aquilæ.					79. 41. 2	78. 14. 35	76. 48. 33	75.22.57
25		73. 57. 46	72. 33. 2	71. 8. 46	69.44.58	68. 21. 38	66. 58. 46	65. 36. 25	64.14.36
26		62. 53. 19	61. 32. 35	60. 12. 25	58.52.50	57. 33. 51			
26	Fomal-haut.					83. 24. 58	82. 2. 24	80. 40. 6	79.18. 5
27		77. 56. 22	76. 34. 56	75. 13. 49	73.53. 0	72. 32. 29	71. 12. 17	69. 52. 25	68.32.53
28		67. 13. 41	65. 54. 49	64. 36. 19	63.18.11	62. 0. 26	60. 43. 4	59. 26. 7	58. 9.35
29		56. 53. 28							
26	The Sun.					119. 28. 34	118. 4. 26	116. 40. 31	115.16.49
27		113. 53. 20	112. 30. 3	111. 6. 57	109.44. 2	108. 21. 19	106. 58. 46	105. 36. 23	104.14.10
28		102. 52. 5	101. 30. 8	100. 8. 18	98.46.35	97. 24. 59	96. 3. 30	94. 42. 6	93.20.47
29		91. 59. 31	90. 38. 19	89. 17. 9	87.56. 2	86. 34. 57	85. 13. 54	83. 52. 51	82.31.48
30		81. 10. 44	79. 49. 39	78. 28. 32	77. 7.23	75. 46. 12	74. 24. 59	73. 3. 41	71.42.18
31		70. 20. 51	68. 59. 18	67. 37. 38	66.15.50	64. 53. 56	63. 31. 55	62. 9. 46	60.47.28
A.1		59. 25. 1							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Antares.	23 22. 17	24. 50. 14	26. 18. 12	27.46.12	29. 14. 14	30. 42. 18	32. 10. 24	33.38.33
2		35. 6. 45	36. 35. 0	38. 3. 19	39.31.41	41. 0. 7	42. 28. 37	43. 57. 12	45.25.52
3		46. 54. 38	48. 23. 30	49. 52. 29	51.21.35	52. 50. 46	54. 20. 4	55. 49. 30	57.19. 4
4		58. 48. 47	60. 18. 39	61. 48. 39	63.18.49	64. 49. 8	66. 19. 36	67. 50. 15	69.21. 4
5		70. 52. 3	72. 23. 13	73. 54. 34	75.26. 6	76. 57. 49	78. 29. 43	80. 1. 50	81.34. 8
6		83. 6. 37							
10	The Sun.							39. 39. 13	41.11.18
11		42. 43. 38	44. 16. 10	45. 48. 56	47.21.55	48. 55. 7	50. 28. 31	52. 2. 6	53.35.53
12		55. 9. 52	56. 44. 2	58. 18. 23	59.52.56	61. 27. 40	63. 2. 34	64. 37. 39	66.12.54
13		67. 48. 21	69. 23. 57	70. 59. 43	72.35.39	74. 11. 46	75. 48. 3	77. 24. 29	79. 1. 5
14		80. 37. 51	82. 14. 46	83. 51. 50	85.29. 3	87. 6. 26	88. 43. 58	90. 21. 38	91.59.27
15		93. 37. 24	95. 15. 30	96. 53. 44	98.32. 6	100. 10. 35	101. 49. 11	103. 27. 54	105. 6.44
16		106. 45. 40	108. 24. 43	110. 3. 52	111.43. 7	113. 22. 28	115. 1. 54	116. 41. 25	118.21. 1
17		120. 0. 41							
14	Aldebaran.					16. 16. 59	17. 54. 3	19. 32. 19	21.11.41
15		22. 52. 3	24. 33. 20	26. 15. 22	27.58. 6	29. 41. 24	31. 25. 1	33. 9. 1	34.53.23
16		36. 38. 7	38. 23. 5	40. 8. 17	41.53.44	43. 39. 25	45. 25. 17	47. 11. 19	48.57.32
17		50. 43. 54	52. 30. 22	54. 16. 58	56. 3.40	57. 50. 29	59. 37. 23	61. 24. 20	63.11.21
18		64. 58. 26							

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S	D. M. S.
18	Pollux.	24. 8. 13	25. 48. 30	27. 29. 31	29. 11. 14	30. 53. 35	32. 36. 29	34. 19. 48	36. 3. 31
19		37. 47. 34	39. 31. 47	41. 16. 9	43. 0. 40	44. 45. 20	46. 30. 2	48. 14. 47	49. 59. 30
20		51. 44. 14	53. 28. 54	55. 13. 31	56. 58. 4	58. 42. 34			
20	Regulus.					21. 43. 43	23. 27. 6	25. 10. 35	26. 54. 8
21		28. 37. 43	30. 21. 17	32. 4. 48	33. 48. 14	35. 31. 35	37. 14. 43	38. 57. 39	40. 40. 24
22		42. 22. 58	44. 5. 17	45. 47. 21	47. 29. 11	49. 10. 44	50. 52. 0	52. 32. 59	54. 13. 41
23		55. 54. 6	57. 34. 12	59. 14. 0	60. 53. 29	62. 32. 39	64. 11. 29	65. 50. 0	67. 28. 12
24		69. 6. 4	70. 43. 37	72. 20. 51	73 57. 46	75. 34. 21			
24	Spica ♍					21. 31. 38	23. 7. 45	24. 43. 36	26. 19. 11
25		27. 54. 29	29. 29. 31	31. 4. 16	32. 38. 45	34. 12. 57	35. 46. 51	37. 20. 29	38. 53. 51
26		40. 25. 56	41. 59. 46	43. 32. 21	45. 4. 41	46. 36. 46	48. 8. 36	49. 40. 12	51. 11. 34
27		52. 42. 44	54. 13. 42	55. 44. 28	57. 15. 3	58. 45. 26	60. 15. 38	61. 45. 40	63. 15. 31
28		64. 45. 12							
28	Antares.	19. 27. 3	20. 55. 26	22. 23. 50	23. 52. 13	25. 20. 36	26. 48. 58	28. 17. 21	29. 45. 43
29		31. 14. 5	32. 42. 25	34. 10. 45	35. 39. 6	37. 7. 27	38. 35. 47	40. 4. 9	41. 32. 31
30		43. 0. 55	44. 29. 21	45. 57. 51	47. 26. 24	48. 55. 0	50. 23. 40	51. 52. 25	53. 21. 16
31		54. 50. 12	56. 19. 14	57. 48. 24	59. 17. 42	60. 47. 7	62. 16. 40	63. 46. 22	65. 16. 13
A. 1		66. 46. 12							

Configurations of the SATELLITES of JUPITER at Eight o' Clock in the Evening.



APRIL 1788.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Tu.	
2	W.	Oxf. and Cam. Ter. beg.
3	Th.	Rich. Bp. of Chichester.
4	F.	St. Ambroſe.
5	Sa.	
6	*Su.*	*2d Sunday after Eaſter.*
7	M.	
8	Tu.	
9	W.	
10	Th.	
11	F.	
12	Sa.	
13	*Su.*	*3d Sunday after Eaſter.*
14	M.	
15	Tu.	
16	W.	
17	Th.	
18	F.	
19	Sa.	Alphege.
20	*Su.*	*4th Sunday after Eaſter.*
21	M.	
22	Tu.	
23	W.	St. George.
24	Th.	
25	F.	*St. Mark. Prs. Mary b.*
26	Sa.	
27	*Su.*	*5th Sunday after Eaſter.*
28	M.	
29	Tu.	
30	W.	

Phaſes of the Moon.

	D. H. M.
New Moon --	6. 1. 17
Firſt Quarter --	12. 23. 52
Full Moon ---	20. 0. 0
Laſt Quarter --	27. 23. 39

Other Phenomena.

D. H. M.	
6.	♂ κ ♊ d. L. 41′.
9.	☿ Stationary.
3. 42	☾ ♀
10. 17. 16	☾ ♃
11. 7. 37	☾ η ♊
10. 47	☾ μ ♊
12. 3. 15	☾ ζ ♊
14. 3. 54	☾ 2 ad α ♋
21. 59	☾ ο ♌
15. 6. 37	☾ π ♌
17. 1. 44	☾ e ♌
18. 22. 47	☉ enters ♉
21. 7. 33	☾ ι ad 1 ♎
22. 5. 30	☾ δ ♏
23. 20. 3	☾ β Ophiuchi.
25. 17. 29	☾ ο ♐
20. 2	☾ π ♐
28.	♀ 125 ♉ d. L. 0/½.

APRIL 1788.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Afc. in Time.	Sun's Declin. North.	Equat. of Time. Add.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Tu.	0. 12.25.23	0.45.41,7	4. 54. 52	3. 40,8	18,1
2	W.	0. 13.24.26	0.49.20,1	5. 17. 52	3. 22,7	17,9
3	Th.	0. 14.23.27	0.52.58,7	5. 40. 47	3. 4,8	17,8
4	F.	0. 15.22.27	0.56.37,4	6. 3. 36	2. 47,0	17,6
5	Sa.	0. 16.21.24	1. 0.16,3	6. 26. 19	2. 29,4	17,4
6	*Su.*	0. 17.20.19	1. 3.55,4	6. 48. 56	2. 12,0	17,2
7	M.	0. 18.19.12	1. 7.34,7	7. 11. 26	1. 54,8	17,0
8	Tu.	0. 19.18. 3	1.11.14,3	7. 33. 48	1. 37,8	16,7
9	W.	0. 20.16.52	1.14.54,1	7. 56. 2	1. 21,1	16,4
10	Th.	0. 21.15.39	1.18.34,2	8. 18. 8	1. 4,7	16,1
11	F.	0. 22.14.24	1.22.14,5	8. 40. 6	0. 48,6	15,9
12	Sa.	0. 23.13. 0	1.25.55,1	9. 1. 55	0. 32,7	15,6
13	*Su.*	0. 24.11.46	1.29.36,0	9. 23. 35	0. 17,1	15,3
14	M.	0. 25.10.23	1.33.17,2	9. 45. 6	0. 1,8	15,0
15	Tu.	0. 26. 8.58	1.36.58,8	10. 6. 27	Sub. 13,2	14,6
16	W.	0. 27. 7.31	1.40.40,7	10. 27. 38	0. 27,8	14,2
17	Th.	0. 28. 6. 2	1.44.22,9	10. 48. 39	0. 42,0	13,9
18	F.	0. 29. 4.31	1.48. 5,6	11. 9 29	0. 55,9	13,5
19	Sa.	1. 0. 2.58	1.51.48,7	11. 30. 8	1. 9,4	13,0
20	*Su.*	1. 1. 1.23	1.55.32,2	11. 50. 35	1. 22,4	12,6
21	M.	1. 1.59.46	1.59.16,1	12. 10. 51	1. 35,0	12,2
22	Tu.	1. 2.58. 7	2. 3. 0,5	12. 30. 55	1. 47,2	11,7
23	W.	1. 3.56.26	2. 6.45,3	12. 50. 46	1. 58,9	11,2
24	Th.	1. 4.54.44	2.10.30,6	13. 10. 25	2. 10,1	10,7
25	F.	1. 5.53. 0	2.14.16,4	13. 29. 51	2. 20,8	10,2
26	Sa.	1. 6.51.15	2.18. 2,7	13. 49. 4	2. 31,0	9,7
27	*Su.*	1. 7.49.28	2.21.49,6	14. 8. 4	2. 40,7	9,1
28	M.	1. 8.47.40	2.25.37,0	14. 26. 50	2. 49,8	8,6
29	Tu.	1. 9.45.51	2.29.25,0	14. 45. 22	2. 58,4	8,0
30	W.	1. 10.44. 0	2.33.13,5	15. 3. 40	3. 6,4	

Days.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 2,2	1. 4,4	2. 27,6	0,000282	8. 20. 30
7	16. 0,5	1. 4,5	2. 27,1	0,001035	8. 20. 11
13	15. 58,9	1. 4,8	2. 26,5	0,001754	8. 19. 52
19	15. 57,4	1. 5,1	2. 26,1	0,002451	8. 19. 32
25	15. 55,8	1. 5,5	2. 25,6	0,003145	8. 19. 13

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite. Emerſions.

Days	H. M. S.
1	19. 37. 17
3	14. 6. 40
*5	8. 36. 2
7	3. 5. 23
8	21. 34. 43
10	16. 4. 3
*12	10. 33. 22
14	5. 2. 39
15	23. 31. 56
17	18. 1. 11
19	12. 30. 25
21	6. 59. 37
23	1. 28. 48
24	19. 57. 57
26	14. 27. 6
*28	8. 56. 12
30	3. 25. 16

II. Satellite. Emerſions.

Days	H. M. S.
2	7. 18. 10
5	20. 37. 35
*9	9. 56. 54
12	23. 16. 6
16	12. 35. 11
20	1. 54. 6
23	15. 12. 54
27	4. 31. 32
30	17. 50. 1

III. Satellite.

Days.	H. M. S.	
4	21. 38. 55	I
5	0. 35. 9	E
12	1. 41. 9	I
12	4. 38. 26	E
19	5. 43. 7	I
*19	8. 41. 26	E
*26	9. 44. 39	I
26	12. 43. 58	E

IV. Satellite.

Days.	H. M. S.	
4	19. 30. 25	I
4	21. 38. 44	E
21	13. 38. 8	I
21	15. 57. 33	E

Day.	Heliocentric Longitude. S. D. M.	Heliocentric Latitude. D. M.	Geocentric Longitude. S. D. M.	Geocentric Latitude. D. M.	Declination. D. M.	Passage over Merid. H. M.
			MERCURY. Gr. Elong. 22^{d}.			
1	6. 27. 12	2. 15 N	0. 1. 47	1. 38 N	2. 12 N	23. 15
4	7. 6. 34	1. 8	0. 0. 10	0. 49	0. 49 N	23. 0
7	7. 15. 29	0. 3 N	11. 29. 21	0. 2 N	0. 14 S	22. 48
10	7. 24. 5	1. 1 S	11. 29. 19	0. 42 S	0. 55	22. 38
13	8. 2. 28	2. 1	0. 0. 1	1. 20	1. 13	22. 31
16	8. 10. 43	2. 57	0. 1. 25	1. 52	1. 9	22. 26
19	8. 18. 57	3. 50	0. 3. 26	2. 17	0. 43	22. 24
22	8. 27. 16	4. 39	0. 5. 59	2. 36	0. 0	22. 23
25	9. 5. 44	5. 22	0. 8. 59	2. 48	0. 59 N	22. 24
28	9. 14. 27	5. 59	0. 12. 24	2. 56	2. 13	22. 25
30	9. 20. 28	6. 20	0. 14. 54	2. 57	3. 9	22. 27
			VENUS.			
1	3. 19. 54	1. 57 N	1. 20. 33	1. 13 N	19. 5 N	2. 25
7	3. 29. 39	2. 24	1. 27. 34	1. 33	21. 8	2. 32
13	4. 9. 24	2. 46	2. 4. 30	1. 51	22. 53	2. 39
19	4. 19. 9	3. 3	2. 11. 22	2. 8	24. 17	2. 46
25	4. 28. 55	3. 16	2. 18. 8	2. 23	25. 18	2. 53
			MARS. □ 11^{d}. $11^{h}\frac{3}{4}$.			
1	4. 25. 12	1. 50 N	3. 18. 28	2. 29 N	24. 39 N	6. 35
7	4. 27. 49	1. 49	3. 20. 50	2. 22	24. 11	6. 23
13	5. 0. 26	1. 48	3. 23. 21	2. 14	23. 39	6. 12
19	5. 3. 3	1. 47	3. 26. 1	2. 7	23. 3	6. 1
25	5. 5. 41	1. 46	3. 28. 47	2. 1	22. 24	5. 51
			JUPITER.			
1	3. 0. 57	0. 11 S	2. 20. 33	0. 10 S	22. 58 N	4. 33
7	3. 1. 27	0. 10	2. 21. 27	0. 10	23. 2	4. 15
13	3. 1. 58	0. 10	2. 22. 25	0. 9	23. 6	3. 57
19	3. 2. 28	0. 9	2. 23. 27	0. 8	23. 10	3. 39
25	3. 2. 59	0. 8	2. 24. 32	0. 7	23. 14	3. 22
			SATURN.			
1	11. 2. 46	1. 39 S	11. 6. 14	1. 31 S	10. 39 S	21. 46
7	11. 2. 58	1. 39	11. 6. 52	1. 32	10. 26	21. 26
13	11. 3. 9	1. 39	11. 7. 27	1. 33	10. 14	21. 6
19	11. 3. 21	1. 40	11. 8. 0	1. 34	10. 2	20. 46
25	11. 3. 32	1. 40	11. 8. 31	1. 35	9. 51	20. 26

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	Tu.	10. 13. 5.32	10. 19. 8.42	4. 4.37 N	4.22.16 N
2	W.	10. 25.15.15	11. 1.25.38	4.37. 4	4.48.48
3	Th.	11. 7.40. 7	11. 13.59. 0	4.57.13	5. 2. 7
4	F.	11. 20.22.19	11. 26.50.14	5. 3.19	5. 0.40
5	Sa.	0. 3.22.34	0. 9.59.19	4.54. 3	4.43.26
6	*Su.*	0. 16.40.10	0. 23.24.55	4.28.50	4.10.19
7	M.	1. 0.13. 8	1. 7. 4.34	3.48. 5	3.22.21
8	Tu.	1. 13.58.42	1. 20.55.13	2.53.27	2.21.46
9	W.	1. 27.53.40	2. 4.53.44	1.47.46	1.11.58 N
10	Th.	2. 11.55. 1	2. 18.57.21	0.34.55 N	0. 2.47 S
11	F.	2. 26. 0.20	3. 3. 3.55	0.40.32 S	1.17.45
12	Sa.	3. 10. 7.48	3. 17.11.53	1.53.49	2.28. 7
13	*Su.*	3. 24.16. 1	4. 1.19.59	3. 0.12	3.29.29
14	M.	4. 8.23.41	4. 15.26.55	3.55.32	4.18. 0
15	Tu.	4. 22.29.24	4. 29.30.55	4.36.29	4.50.45
16	W.	5. 6.31. 5	5. 13.29.38	5. 0.36	5. 5.57
17	Th.	5. 20.26. 7	5. 27.20.13	5. 6.45	5. 3. 5
18	F.	6. 4.11.29	6. 10.59.36	4.55. 5	4.42.55
19	Sa.	6. 17.44. 9	6. 24.24.55	4.26.55	4. 7.22
20	*Su.*	7. 1. 1.35	7. 7.34. 2	3.44.39	3.19.10
21	M.	7. 14. 2. 5	7. 20.25.48	2.51.22	2.21.39
22	Tu.	7. 26.45. 8	8. 3. 0.19	1.50.29	1.18.17
23	W.	8. 9.11.29	8. 15.19. 0	0.45.26 S	0.12.21 S
24	Th.	8. 21.23. 9	8. 27.24.25	0.20.37 N	0.53. 7 N
25	F.	9. 3.23.13	9. 9.20. 9	1.24.50	1.55.29
26	Sa.	9. 15.15.43	9. 21.10.35	2.24.47	2.52.28
27	*Su.*	9. 27. 5.20	10. 3. 0.37	3.18.19	3.42. 4
28	M.	10. 8.57. 5	10. 14.55.22	4. 3.31	4.22.26
29	Tu.	10. 20.56. 6	10. 26.59.53	4.38.36	4.51.47
30	W.	11. 3. 7.13	11. 9.18.43	5. 1.47	5. 8.23

APRIL 1788. VI.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſs-age over Merid.	☽'s Right Aſcenſion at Noon.	☽'s Right Aſcenſ. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	Tu.	26	20. 49	314. 22	320. 11	13. 0 S	10. 56 S
2	W.	27	21. 33	325. 58	331. 44	8. 46	6. 29
3	Th.	28	22. 17	337. 31	343. 19	4. 6 S	1. 39 S
4	F.	29	23. 2	349. 10	355. 6	0. 50 N	3. 20 N
5	Sa.	30	23. 50	1. 8	7. 18	5. 50	8. 18
6	*Su.*	1	☌	13. 37	20. 5	10. 41	12. 59
7	M.	2	0. 41	26. 44	33. 34	15. 7	17. 5
8	Tu.	3	1. 35	40. 36	47. 49	18. 49	20. 17
9	W.	4	2. 32	55. 11	62. 42	21. 28	22. 19
10	Th.	5	3. 31	70. 19	77. 59	22. 49	22. 58
11	F.	6	4. 31	85. 40	93. 18	22. 44	22. 8
12	Sa.	7	5. 30	100. 52	108. 19	21. 11	19. 54
13	*Su.*	8	6. 27	115. 37	122. 46	18. 20	16. 28
14	M.	9	7. 21	129. 46	136. 37	14. 23	12. 6
15	Tu.	10	8. 13	143. 20	149. 55	9. 40	7. 7
16	W.	11	9. 3	156. 25	162. 50	4. 28 N	1. 47 N
17	Th.	12	9. 52	169. 12	175. 33	0. 54 S	3. 34 S
18	F.	13	10. 40	181. 53	188. 14	6. 11	8. 41
19	Sa.	14	11. 29	194. 37	201. 3	11. 4	13. 18
20	*Su.*	15	12. 20	207. 32	214. 4	15. 21	17. 12
21	M.	16	13. 11	220. 40	227. 19	18. 48	20. 9
22	Tu.	17	14. 2	233. 59	240. 41	21. 15	22. 4
23	W.	18	14. 53	247. 22	254. 2	22. 36	22. 52
24	Th.	19	15. 43	260. 39	267. 12	22. 51	22. 33
25	F.	20	16. 32	273. 39	280. 1	22. 0	21. 13
26	Sa.	21	17. 19	286. 16	292. 25	20. 12	18. 57
27	*Su.*	22	18. 5	298. 28	304. 25	17. 31	15. 54
28	M.	23	18. 49	310. 17	316. 5	14. 7	12. 11
29	Tu.	24	19. 32	321. 50	327. 32	10. 8	7. 57
30	W.	25	20. 14	333. 14	338. 57	5. 41	3. 19

APRIL 1788.

Days of the Month.	Days of the Week.	Semidʳ. ☽ at Noon. M. S.	Semidʳ. ☽ at Midnight. M. S.	Hor. Par. ☽ at Noon. M. S.	Hor. Par. ☽ at Midnight. M. S.	Propoʀt. Logar. at Noon.	Propoʀt. Logar. at Midn.
1	Tu.	14. 55	14. 59	54. 46	54. 58	5167	5152
2	W.	15. 3	15. 7	55. 12	55. 27	5133	5114
3	Th.	15. 11	15. 16	55. 43	56. 1	5093	5069
4	F.	15. 21	15. 26	56. 19	56. 38	5046	5022
5	Sa.	15. 31	15. 36	56. 57	57. 16	4998	4973
6	*Su.*	15. 41	15. 46	57. 34	57. 52	4951	4928
7	M.	15. 50	15. 55	58. 8	58. 23	4908	4890
8	Tu.	15. 58	16. 2	58. 37	58. 49	4872	4858
9	W.	16. 4	16. 7	58. 59	59. 8	4845	4834
10	Th.	16. 9	16. 10	59. 15	59. 20	4826	4820
11	F.	16. 11	16. 11	59. 23	59. 25	4816	4813
12	Sa.	16. 12	16. 11	59. 26	59. 25	4812	4813
13	*Su.*	16. 11	16. 10	59. 24	59. 21	4815	4819
14	M.	16. 9	16. 8	59. 17	59. 12	4823	4830
15	Tu	16. 6	16. 4	59. 6	58. 59	4837	4845
16	W.	16. 2	15. 59	58. 51	58. 41	4855	4867
17	Th.	15. 56	15. 53	58. 30	58. 18	4881	4896
18	F.	15. 49	15. 45	58. 4	57. 50	4913	4931
19	Sa.	15. 41	15. 37	57. 34	57. 18	4951	4971
20	*Su.*	15. 32	15. 28	57. 1	56. 44	4992	5014
21	M.	15. 23	15. 18	56. 27	56. 9	5036	5059
22	Tu.	15. 13	15. 9	55. 52	55. 36	5081	5102
23	W.	15. 5	15. 1	55. 20	55. 6	5123	5141
24	Th.	14. 58	14. 55	54. 54	54. 44	5157	5170
25	F.	14. 52	14. 50	54. 35	54. 28	5182	5191
26	Sa.	14. 49	14. 49	54. 24	54. 22	5197	5199
27	*Su.*	14. 49	14. 50	54. 23	54. 26	5198	5194
28	M.	14. 52	14. 54	54. 32	54. 40	5186	5175
29	Tu.	14. 57	15. 0	54. 51	55. 4	5161	5144
30	W.	15. 4	15. 9	55. 19	55. 36	5124	5102

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S	D M. S.	D. M. S.	D. M. S.	D. . S.
1	The Sun.	59. 25. 1	58. 2. 24	56. 39. 38	55. 16. 41	53. 53. 3	52. 30. 16	51. 6. 46	49. 43. 5
2		48. 19. 11	46. 55. 5	45. 30. 46	44. 6. 16	42. 41. 33	41. 16. 37	39. 51. 28	38. 26. 6
3		37. 0. 31							
7	Pollux.					72. 58. 3	71. 16. 12	69. 34. 13	67. 52. 5
8		66. 9. 47	64. 27. 22	62. 44. 51	61. 2. 15	59. 19. 32	57. 36. 45	55. 53. 55	54. 11. 3
9		52. 28. 8	50. 45. 12	49. 2. 17	47. 19. 2	45. 36. 34	43. 53. 49	42. 11. 12	40. 28. 42
10		38. 46. 21							
10	Regulus.	74. 58. 36	73. 13. 9	71. 27. 39	69. 42. 7	67. 56. 33	66. 10. 58	64. 25. 21	62. 39. 43
11		60. 54. 4	59. 8. 24	57. 22. 44	55. 37. 4	53. 51. 25	52. 5. 47	50. 20. 12	48. 34. 39
12		46. 49. 9	45. 3. 42	43. 18. 19	41. 33. 1	39. 47. 48	38. 2. 39	36. 17. 38	34. 32. 45
13		32. 48. 1	31. 3. 26	29. 19. 5	27. 35. 0	25. 51. 13	24. 7. 48	22. 24. 48	20. 42. 13
14		19. 0. 8							
14	Spica ♍	72. 24. 46	70. 39. 5	68. 53. 28	67. 7. 54	65. 22. 25	63. 37. 0	61. 51. 40	60. 6. 24
15		58. 21. 14	56. 36. 8	54. 51. 8	53. 6. 14	51. 21. 25	49. 36. 43	47. 52. 7	46. 7. 39
16		44. 23. 17	42. 39. 2	40. 54. 55	39. 10. 56	37. 27. 6	35. 43. 24	33. 59. 52	32. 16. 30
17		30. 33. 19	28. 50. 18	27. 7. 29	25. 24. 51	23. 42. 26			
17	Antares.					69. 12. 18	67. 29. 49	65. 47. 30	64. 5. 23
18		62. 23. 26	60. 41. 41	59. 0. 8	57. 18. 47	55. 37. 39	53. 56. 45	52. 16. 3	50. 35. 35

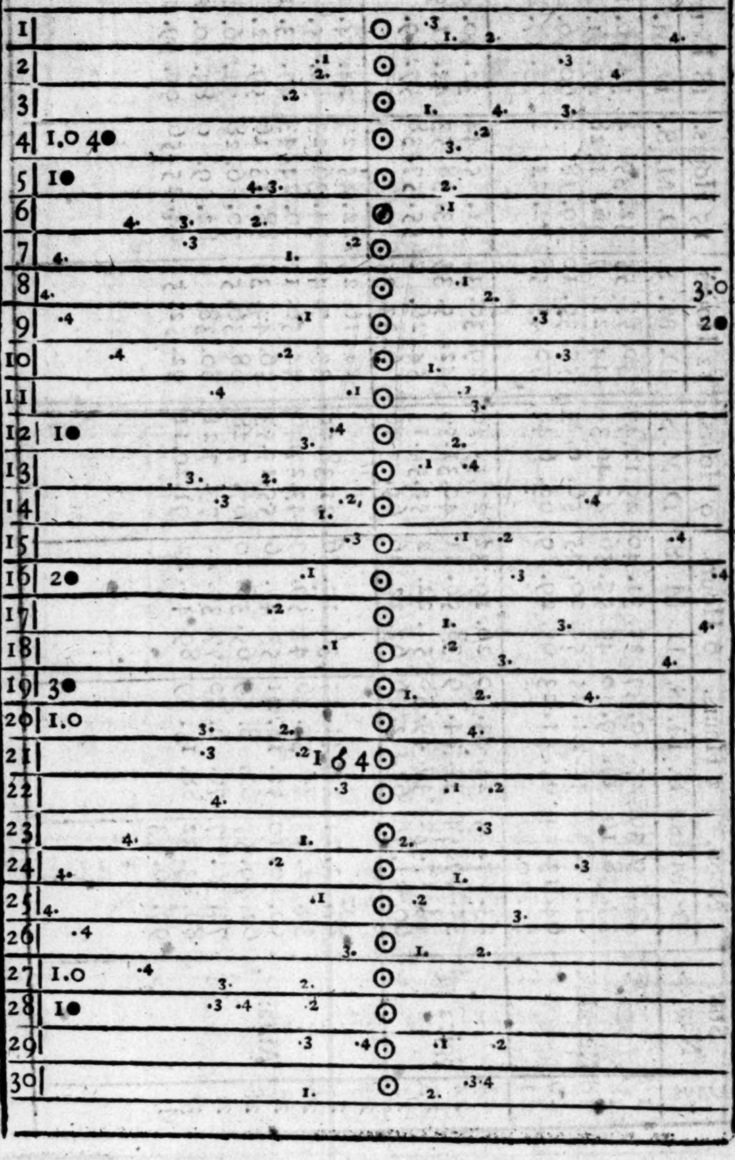
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
19	Antares.	48. 55. 19	47. 15. 17	45. 35. 30	43.55.58	42. 16. 41	40. 37. 39	38. 58. 54	37.20.25
20		35. 42. 13	34. 4. 18	32. 26. 41	30.49.21	29. 12. 20			
20	α Aquilæ.					84. 0. 7	82. 32. 33	81. 5. 16	79.38.17
21		78. 11. 37	76. 45. 17	75. 19. 18	73.53.41	72. 28. 27	71. 3. 38	69. 39. 14	68.15.16
22		66. 51. 46	65. 28. 44	64. 6. 11	62.44. 7	61. 22. 35			
22	Fomal-haut.					87. 32. 51	86. 8. 54	84. 45. 11	83.21.44
23		81. 58. 31	80. 35. 35	79. 12. 56	77.50.34	76. 28. 30	75. 6. 44	73. 45. 18	72.24.11
24		71. 3. 24	69. 42. 57	68. 22. 52	67. 3. 9	65. 43. 49	64. 24. 52	63. 6. 19	61.48.11
25		60. 30. 29							
25	α Pegasi.	77. 25. 4	75. 58. 17	74. 31. 39	73. 5.10	71. 38. 50	70. 12. 39	68. 46. 36	67.20.42
26		65. 54. 56	64. 29. 18	63. 3. 48	61.38.25	60. 13. 10	58. 48. 3	57. 23. 4	55.58.12
27		54. 33. 29	53. 8. 53	51. 44. 24	50.20. 5	48. 55. 56	47. 31. 56	46. 8. 7	44.44.30
28		43. 21. 3							
25	The Sun.	122. 29. 7	121. 6. 55	119. 44. 49	118.22.51	117. 0. 59	115. 39. 13	114. 17. 31	112.55.54
26		111. 34. 20	110. 12. 49	108. 51. 21	107.29.55	106. 8. 31	104. 47. 9	103. 25. 47	102. 4.26
27		100. 43. 4	99. 21. 41	98. 0. 16	96.38.48	95. 17. 18	93. 55. 45	92. 34. 7	91.12.25
28		89. 50. 38	88. 28. 45	87. 6. 45	85.44.39	84. 22. 23	83. 0. 2	81. 37. 30	80.14.50
29		78. 52. 0	77. 28. 58	76. 5. 46	74.42.22	73. 18. 47	71. 55. 0	70. 30. 59	69. 6.44
30		67. 42. 15	66. 17. 31	64. 52. 31	63.27.15	62. 1. 44	60. 35. 56	59. 9. 51	57.43.29
M.1		56. 16. 49							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Antares.	66.46.12	68.16.23	69.46.45	71.17.19	72.48. 4	74.19. 1	75.50.10	77.21.32
2		78.53. 7	80.24.55	81.56.57	83.29.13	85. 1.44	86.34.29	88. 7.30	89.40.45
3		91.14.16	92.48. 4	94.22. 8	95.56.28	97.31. 4	99. 5.56	100.41. 5	102.16.30
4		103.52.12	105.28.11	107. 4.27	108.41. 1	110.17.52			
9	The Sun.	37.38.59	39.16. 5	40.53.19	42.30.42	44. 8.14	45.45.53	47.23.39	49. 1.32
10		50.39.31	52.17.36	53.55.45	55.33.59	57.12.18	58.50.40	60.29. 5	62. 7.33
11		63.46. 4	65.24.38	67. 3.13	68.41.50	70.20.29	71.59. 8	73.37.47	75.16.27
12		76.55. 8	78.33.48	80.12.29	81.51. 8	83.29.48	85. 8.27	86.47. 4	88.25.40
13		90. 4.14	91.42.46	93.21.16	94.59.45	96.38.10	98.16.33	99.54.53	101.33. 9
14		103.11.23	104.49.34	106.27.41	108. 5.45	109.43.45	111.21.40	112.59.30	114.37.16
15		116.14.56	117.52.31	119.30. 1	121. 7.25				
13	Aldebaran.	47.21.29	49. 6.23	50.51.19	52.36.15	54.21.13	56. 6.11	57.51. 8	59.36. 5
14		61.21. 2	63. 5.57	64.50.49	66.35.40	68.20.27	70. 5.12	71.49.53	73.34.30
15		75.19. 4							
15	Pollux.	34. 2.56	35.43.52	37.24.59	39. 6.18	40.47.48	42.29.26	44.11.11	45.53. 1
16		47.34.55	49.16.49	50.58.44	52.40.39	54.22.34	56. 4.26	57.46.15	59.27.59
17		61. 9.39							

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours
		D M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
17		24. 9. 39	25. 50. 37	27. 31. 40	29.12.47	30. 53. 55	32. 35. 4	34. 16. 11	35.57.15
18		37. 38. 16	39. 19. 10	40. 59. 56	42.40.35	44. 21. 7	46. 1. 28	47. 41. 40	49.21.42
19	Regulus.	51. 1. 34	52. 41. 15	54. 20. 45	56. 0. 3	57. 39. 10	59. 18. 3	60. 56. 43	62.35.10
20		64. 13. 24	65. 51. 23	67. 29. 9	69. 6.40	70. 43. 58	72. 21. 1	73. 57. 49	75.34.23
21		77. 10. 42							
21		23. 7. 35	24. 43. 40	26. 19. 32	27.55.10	29. 30. 34	31. 5. 44	32. 40. 41	34.15.24
22	Spica ♍	35. 49. 54	37. 24. 9	38. 58. 11	40.31.59	42. 5. 33	43. 38. 53	45. 11. 59	46.44.52
23		48. 17. 32	49. 49. 58	51. 22. 12	52.54.13	54. 26. 2	55. 57. 38	57. 29. 2	59. 0.15
24		60. 31. 16	62. 2. 6	63. 32. 46	65. 3.16	66. 33. 35			
24						21. 16. 25	22. 45. 27	24. 14. 27	25.43.25
25		27. 12. 21	28. 41. 15	30. 10. 6	31.38.55	33. 7. 40	34. 36. 23	36. 5. 2	37.33.39
26		39. 2. 13	40. 30. 46	41. 59. 17	43.27.46	44. 56. 15	46. 24. 43	47. 53. 12	49.21.41
27	Antares.	50. 50. 10	52. 18. 41	53. 47. 16	55.15.53	56. 44. 33	58. 13. 16	59. 42. 4	61.10.57
28		62. 39. 55	64. 8. 59	65. 38. 10	67. 7.28	68. 36. 54	70. 6. 28	71. 36. 12	73. 6. 5
29		74. 36. 7	76. 6. 20	77. 36. 45	79. 7.21	80. 38. 9	82. 9. 9	83. 40. 23	85.11.50
30		86. 43. 32	88. 15. 29	89. 47. 42	91.20.11	92. 52. 55	94. 25. 56	95. 59. 14	97.32.50
M. 1		99. 6. 43							

Configurations of the SATELLITES of JUPITER at Half an Hour paſt Eight o'Clock in the Evening.



MAY 1788.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Th.	*Asc. Day. St. Phil. & St.* [*James.*
2	F.	On mor. of Asc. 5 ret.
3	Sa.	Invention of the Croſs.
4	*Su.*	*Sunday after Aſcenſion.*
5	M.	Eaſter Term ends.
6	Tu.	John Ev. ante Port. Lat.
7	W.	
8	Th.	Oxf. Term ends.
9	F.	
10	Sa.	
11	*Su.*	*Whit-Sunday.*
12	M.	*Whit-Monday.*
13	Tu.	*Whit-Tueſday.*
14	W.	
15	Th.	
16	F.	
17	Sa.	
18	*Su.*	*Trin. Su.* Cam. T. div. m.
19	M.	*Q. Charlotte born* 1744. [Dunſtan.
20	Tu.	
21	W.	Oxford Term begins.
22	Th.	*Prs. Elizabeth born.*
23	F.	
24	Sa.	
25	*Su.*	*1ſt Sunday after Trinity.*
26	M.	Aug. 1ſt Abp. Cant.
27	Tu.	Venerable Bede.
28	W.	
29	Th.	*K. Charles II. reſtored.*
30	F.	
31	Sa.	

Phaſes of the Moon.

	D. H. M.
New Moon —	5. 12. 14
Firſt Quarter—	12. 5. 33
Full Moon —	19. 13. 8
Laſt Quarter —	27. 16. 33

Other Phenomena.

D.H.M.	
8. 8.47	☾ ♃
14.20	☾ η ♊
17.24	☾ μ ♊
9. 9.28	☾ ζ ♊
11. 8.30	☾ 1 ad α ♋
9.31½	☾ 2 ad α ♋ Im. * 4′ S. of ☽'s center.
10.30½	Em. * 1′ N.
13.41	☾ κ ♋
12.	♀ ε ♊ d.Lat.46′.
3.25	☾ ο ♌
12. 4	☾ π ♌
14. 7.36	☾ e ♌
18.15. 4	☾ 1 ad ι ♎
19.13.12	☾ δ ♏
23.21	☉ enters ♊
21. 3.49	☾ β Ophiu.
23. 3.41	☾ π ♐
24.	♃ η ♊ d.Lat.51′.
15.44	☾ β ♑
25.	♀ κ ♊ d.Lat.19′.
31. 7.40	☾ η ♓

MAY 1788.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Aſc. in Time.	Sun's Declin. North.	Equat. of Time Sub.	Dift.
		S. D.M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Th.	1. 11.42. 8	2.37. 2,6	15.21.41	3.13,8	6,9
2	F.	1. 12.40.15	2.40.52,2	15.39.29	3.20,7	6,3
3	Sa.	1. 13.38.19	2.44.42,4	15.57. 2	3.27,0	5,8
4	*Su.*	1. 14.36.23	2.48.33,2	16.14.18	3.32,8	5,2
5	M.	1. 15.34.25	2.52.24,5	16.31.18	3.38,0	4,6
6	Tu.	1. 16.32.26	2.56.16,4	16.48. 2	3.42,6	4,0
7	W.	1. 17.30.24	3. 0. 8,9	17. 4.29	3.46,6	3,6
8	Th.	1. 18.28.21	3. 4. 1,9	17.20.40	3.50,2	3,0
9	F.	1. 19.26.17	3. 7.55,5	17.36.32	3.53,2	2,4
10	Sa.	1. 20.24.11	3.11.49,7	17.52. 7	3.55,6	1,8
11	*Su.*	1. 21.22. 3	3.15.44,4	18. 7.24	3.57,4	1,2
12	M.	1. 22.19.53	3.19.39,7	18.22.23	3.58,6	0,7
13	Tu.	1. 23.17.42	3.23.35,6	18.37. 3	3.59,3	0,2
14	W.	1. 24.15.28	3.27.31,9	18.51.25	3.59,5	0,4
15	Th.	1. 25.13.13	3.31.28,9	19. 5.27	3.59,1	0,9
16	F.	1. 26.10.56	3.35.26,4	19.19.10	3.58,2	1,5
17	Sa.	1. 27. 8.37	3.39.24,4	19.32.33	3.56,7	2,0
18	*Su.*	1. 28. 6.17	3.43.23,0	19.45.37	3.54,7	2,5
19	M.	1. 29. 3.56	3.47.22,1	19.58.20	3.52,2	3,1
20	Tu.	2. 0. 1.33	3.51.21,7	20.10.43	3.49,1	3,6
21	W.	2. 0.59.10	3.55.21,9	20.22.45	3.45,5	4,2
22	Th.	2. 1.56.45	3.59.22,7	20.34.27	3.41,3	4,8
23	F.	2. 2.54.19	4. 3.24,0	20.45.47	3.36,5	5,3
24	Sa.	2. 3.51.52	4. 7.25,8	20.56.46	3.31,2	5,8
25	*Su.*	2. 4.49.24	4.11.28,2	21. 7.24	3 25,4	6,3
26	M.	2. 5.46.56	4.15.31,0	21.17.40	3.19,1	6,8
27	Tu.	2. 6.44.26	4.19.34,4	21.27.34	3.12,3	7,2
28	W.	2. 7.41.57	4.23.38,2	21.37. 6	3. 5,1	7,7
29	Th.	2. 8.39.26	4.27.42,6	21.46.16	2.57,4	8,2
30	F.	2. 9.36.55	4.31.47,4	21.55. 3	2.49,2	8,7
31	Sa.	2. 10.34.23	4.35.52,6	22. 3.27	2.40,5	

Days of the Month.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	15. 54,4	1. 6,0	2. 25,2	0,003814	8. 18. 54
7	15. 53,1	1. 6,5	2. 24,8	0,004427	8. 18. 35
13	15. 51,9	1. 7,0	2. 24,5	0,004974	8. 18. 16
19	15. 50,8	1. 7,4	2. 24,2	0,005467	8. 17. 57
25	15. 49,7	1. 7,8	2. 23,9	0,005927	8. 17. 38

Eclipſes of the SATELLITES of JUPITER.

I. Satellite. Emerſions.		II. Satellite. Emerſions.		III. Satellite.	
Days	H. M. S.	Days	H. M. S.	Days	H. M. S.
1	21. 54. 18	4	7. 8. 17	3	13. 45. 47 I
3	16. 23. 17	7	20. 26. 24	3	16. 45. 52 E
5	10. 52. 15	*11	9. 44. 22	10	17. 46. 19 I
7	5. 21. 12	14	23. 2. 8	10	20. 47. 27 E
8	23. 50. 6	18	12. 19. 45	17	21. 46. 15 I
10	18. 18. 59	22	1. 37. 16	18	0. 48. 22 E
12	12. 47. 50	25	14. 54. 34	25	1. 45. 44 I
14	7. 16. 38	29	4. 11. 44	25	4. 48. 50 E
16	1. 45. 26				
17	20. 14. 10			IV. Satellite.	
19	14. 42. 54				
*21	9. 11. 36			8	7. 43. 32 I
23	3. 40. 14			8	10. 13. 10 E
24	22. 8. 51			25	1. 46. 12 I
26	16. 37. 29			25	4. 25. 27 E
28	11. 6. 2				
30	5. 34. 35				

Days.	Heliocentric Longitude. S. D. M.	Heliocentric Latitude. D. M.	Geocentric Longitude. S. D. M.	Geocentric Latitude. D. M.	Declination. D. M.	Paſſage over Merid. H. M.
MERCURY. Sup. ☌ 30^{d}. $14\frac{1}{4}^{h}$.						
1	9. 23. 33	6. 29 S	0. 16. 12	2. 57 S	3. 40 N	22. 28
4	10. 3. 8	6. 50	0. 20. 20	2. 53	5. 17	22. 33
7	10. 13. 19	7. 0	0. 24. 47	2. 43	7. 5	22. 38
10	10. 24. 17	6. 55	0. 29. 33	2. 29	9. 0	22. 44
13	11. 6. 10	6. 34	1. 4. 39	2. 10	11. 3	22. 52
16	11. 19. 9	5. 52	1. 10. 4	1. 46	13. 10	23. 1
19	0. 3. 23	4. 44	1. 15. 44	1. 20	15. 18	23. 11
22	0. 18. 57	3. 11	1. 21. 44	0. 50	17. 25	23. 23
25	1. 5. 51	1. 13 S	1. 28. 0	0. 18 S	19. 27	23. 36
28	1. 23. 55	0. 59 N	2. 4. 29	0. 14 N	21. 18	23. 51
31	2. 12. 41	3. 10	2. 11. 4	0. 44	22. 52	0. 2
VENUS. Gr. Elon. 30^{d}.						
1	5. 8. 40	3. 22 N	2. 24. 49	2. 35 N	25. 57 N	3. 0
7	5. 18. 24	3. 23	3. 1. 21	2. 41	26. 12	3. 6
13	5. 28. 8	3. 18	3. 7. 46	2. 49	26. 3	3. 11
19	6. 7. 51	3. 7	3. 14. 1	2. 49	25. 32	3. 15
25	6. 17. 32	2. 51	3. 20. 3	2. 45	24. 42	3. 17
MARS.						
1	5. 8. 18	1. 44 N	4. 1. 39	1. 55 N	21. 41 N	5. 40
7	5. 10. 55	1. 42	4. 4. 37	1. 49	20. 53	5. 29
13	5. 13. 33	1. 40	4. 7. 40	1. 43	20. 2	5. 18
19	5. 16. 11	1. 38	4. 10. 47	1. 37	19. 7	5. 7
25	5. 18. 50	1. 35	4. 13. 59	1. 32	18. 7	4. 56
JUPITER.						
1	3. 3. 29	0. 7 S	2. 25. 40	0. 7 S	23. 17 N	3. 4
7	3. 4. 0	0. 7	2. 26. 52	0. 6	23. 20	2. 46
13	3. 4. 30	0. 6	2. 28. 5	0. 5	23. 22	2. 28
19	3. 5. 0	0. 5	2. 29. 20	0. 5	23. 24	2. 10
25	3. 5. 31	0. 5	3. 0. 37	0. 4	23. 24	1. 51
SATURN. □ 31^{d}. $2\frac{1}{4}^{h}$.						
1	11. 3. 44	1. 40 S	11. 9. 0	1. 36 S	9. 42 S	20. 5
7	11. 3. 55	1. 41	11. 9. 26	1. 37	9. 33	19. 43
13	11. 4. 7	1. 41	11. 9. 49	1. 39	9. 25	19. 21
19	11. 4. 18	1. 42	11. 10. 9	1. 40	9. 19	18. 59
25	11. 4. 30	1. 42	11. 10. 26	1. 41	9. 14	18. 36

V. MAY 1788.

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	Th.	11. 15.34.44	11. 21.55.44	5.11.26N	5.10.42 N
2	F.	11. 28.21.57	0. 4.53.38	5. 6. 5	4.57.26
3	Sa.	0. 11.30.50	0. 18.13.36	4.44.43	4.27.55
4	*Su.*	0. 25. 1.41	1. 1.54.57	4. 7. 9	3.42.28
5	M.	1. 8.53. 0	1. 15.55.21	3.14.14	2.42.42
6	Tu.	1. 23. 1.26	2. 0.10.38	2. 8.22	1.31.43
7	W.	2. 7.22.18	2. 14.35.43	0.53.22 N	0.13.58 N
8	Th.	2. 21.50.11	2. 29. 5. 8	0.25.46 S	1. 5.10 S
9	F.	3. 6.19.53	3. 13.33.53	1.43.31	2.20. 9
10	Sa.	3. 20.46.41	3. 27.57.48	2.54.28	3.25.52
11	*Su.*	4. 5. 6.59	4. 12.13.49	3.53.55	4.18.11
12	M.	4. 19.18.10	4. 26.19.45	4.38.22	4.54.14
13	Tu.	5. 3.18.29	5. 10.14. 7	5. 5.37	5.12.28
14	W.	5. 17. 6.40	5. 23.55.53	5.14.47	5.12.35
15	Th.	6. 0.41.51	6. 7.24.21	5. 6. 4	4.55.24
16	F.	6. 14. 3.28	6. 20.39. 5	4.40.50	4.22.38
17	Sa.	6. 27.11.12	7. 3.39.51	4. 1. 9	3.36.43
18	*Su.*	7. 10. 5. 1	7. 16.26.45	3. 9.46	2.40.38
19	M.	7. 22.45. 8	7. 29. 0.14	2. 9.47	1.37.35
20	Tu.	8. 5.12.11	8. 11.21. 9	1. 4.30 S	0.30.53 S
21	W.	8. 17.27.17	8. 23.30.50	0. 2.50 N	0.36.19 N
22	Th.	8. 29.32. 2	9. 5.31.12	1. 9.11	1.41. 7
23	F.	9. 11.28.41	9. 17.24.52	2.11.48	2.40.57
24	Sa.	9. 23.20. 9	9. 29.15. 3	3. 8.18	3.33.36
25	*Su.*	10. 5.10. 0	10. 11. 5.33	3.56.37	4.17.10
26	M.	10. 17. 2.16	10. 23. 0.40	4.35. 0	4.49.58
27	Tu.	10. 29. 1.21	11. 5. 4.55	5. 1.50	5.10.28
28	W.	11. 11.11.52	11. 17.22.48	5.15.40	5.17.18
29	Th.	11. 23.38.14	11. 29.58.38	5.15.13	5. 9.18
30	F.	0. 6.24.29	0. 12.56. 7	4.59.27	4.45.36
31	Sa.	0. 19.33.48	0. 26.17.47	4.27.45	4. 5.57

MAY 1788.

Days of the Month	Days of the Week.	☽'s Age.	☽'s Paſsage over Merid.	☽'s Right Aſcenſ. at Noon.	☽'s Right Aſcenſ. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M	D. M.	D. M.
1	Th.	26	20. 59	344. 43	350. 32	0. 54 S	1. 33 N
2	F.	27	21. 47	356. 28	2. 31	4. 2 N	6. 30
3	Sa.	28	22. 35	8. 43	15. 4	8. 55	11. 17
4	*Su.*	29	23. 28	21. 38	28. 24	13. 32	15. 38
5	M.	1	☌	35. 24	42. 37	17. 33	19. 13
6	Tu.	2	0. 25	50. 2	57. 39	20. 37	21. 42
7	W.	3	1. 25	65. 24	73. 15	22. 27	22. 48
8	Th.	4	2. 26	81. 8	89. 0	22. 47	22. 23
9	F.	5	3. 27	96. 48	104. 29	21. 36	20. 27
10	Sa.	6	4. 26	112. 0	119. 20	18. 59	17. 14
11	*Su.*	7	5. 22	126. 30	133. 28	15. 14	13. 1
12	M.	8	6. 14	140. 15	146. 53	10. 38	8. 8
13	Tu.	9	7. 4	153. 24	159. 47	5. 33	2. 55 N
14	W.	10	7. 52	166. 6	172. 22	0. 16 N	2. 22 S
15	Th.	11	8. 39	178. 36	184. 51	4. 57 S	7. 28
16	F.	12	9. 27	191. 6	197. 23	9. 52	12. 8
17	Sa.	13	10. 16	203. 44	210. 9	14. 14	16. 9
18	*Su.*	14	11. 5	216. 37	223. 10	17. 52	19. 20
19	M.	15	11. 56	229. 45	236. 24	20. 34	21. 33
20	Tu.	16	12. 47	243. 3	249. 43	22. 15	22. 41
21	W.	17	13. 38	256. 22	262. 58	22. 50	22. 42
22	Th.	18	14. 27	269. 30	275. 56	22. 19	21. 40
23	F.	19	15. 15	282. 17	288. 31	20. 47	19. 40
24	Sa.	20	16. 0	294. 38	300. 38	18. 21	16. 51
25	*Su.*	21	16. 44	306. 32	312. 21	15. 10	13. 20
26	M.	22	17. 27	318. 5	323. 45	11. 23	9. 18
27	Tu.	23	18. 9	329. 24	335. 2	7. 7	4. 50
28	W.	24	18. 52	340. 39	346. 20	2. 30 S	0. 7 S
29	Th.	25	19. 36	352. 5	357. 55	2. 18 N	4. 43 N
30	F.	26	20. 23	3. 53	10. 1	7. 8	9. 30
31	Sa.	27	21. 13	16. 20	22. 51	11. 47	13. 59

MAY 1788.

Days of the Month.	Days of the Week.	Semid^r. ☽ at Noon.	Semid^r. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	Th.	15. 14	15. 20	55. 56	56. 18	5076	5048
2	F.	15. 26	15. 33	56. 40	57. 3	5019	4990
3	Sa.	15. 39	15. 46	57. 26	57. 50	4961	4931
4	*Su*	15. 52	15. 58	58. 13	58. 35	4902	4875
5	M.	16. 3	16. 8	58. 55	59. 14	4850	4827
6	Tu.	16. 13	16. 16	59. 30	59. 43	4806	4792
7	W.	16. 19	16. 21	59. 54	60. 1	4778	4770
8	Th.	16. 22	16. 23	60. 5	60. 7	4765	4763
9	F.	16. 23	16. 22	60. 6	60. 2	4764	4769
10	Sa.	16. 20	16. 18	59. 56	59. 48	4776	4786
11	*Su.*	16. 15	16. 12	59. 38	59. 27	4798	4811
12	M.	16. 8	16. 5	59. 14	59. 1	4827	4843
13	Tu.	16. 1	15. 57	58. 47	58. 33	4860	4877
14	W.	15. 53	15. 49	58. 18	58. 3	4896	4915
15	Th.	15. 45	15. 41	57. 47	57. 32	4934	4953
16	F.	15. 37	15. 32	57. 17	57. 2	4972	4991
17	Sa.	15. 28	15. 24	56. 47	56. 31	5010	5031
18	*Su.*	15. 20	15. 16	56. 16	56. 1	5050	5069
19	M.	15. 12	15. 8	55. 47	55. 33	5087	5106
20	Tu.	15. 5	15. 2	55. 21	55. 9	5122	5137
21	W.	14. 58	14. 55	54. 57	54. 46	5153	5167
22	Th.	14. 53	14. 51	54. 37	54. 30	5179	5189
23	F.	14. 49	14. 48	54. 24	54. 19	5197	5203
24	Sa.	14. 47	14. 47	54. 16	54. 16	5207	5207
25	*Su.*	14. 48	14. 49	54. 18	54. 22	5205	5199
26	M.	14. 51	14. 53	54. 28	54. 37	5191	5179
27	Tu.	14. 56	15. 0	54. 48	55. 2	5165	5146
28	W.	15. 4	15. 9	55. 19	55. 38	5124	5099
29	Th.	15. 15	15. 21	55. 58	56. 21	5073	5044
30	F.	15. 28	15. 35	56. 45	57. 11	5013	4980
31	Sa.	15. 42	15. 49	57. 38	58. 4	4946	4913

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S	D. M. S.	D. M. S.	D. M. S.
1	The Sun.	56. 16. 49	54. 49. 52	53. 22. 36	51. 55. 0	50. 27. 6	48. 58. 53	47. 30. 19	46. 1. 27
2		44. 32. 14	43. 2. 40	41. 32. 46	40. 2. 31	38. 31. 55			
7	Regulus.	79. 31. 9	77. 42. 59	75. 54. 44	74. 6. 25	72. 18. 0	70. 29. 32	68. 41. 1	66. 52. 29
8		65. 3. 55	63. 15. 20	61. 26. 46	59. 38. 14	57. 49. 43	56. 1. 16	54. 12. 52	52. 24. 34
9		50. 36. 20	48. 48. 13	47. 0. 13	45. 12. 22	43. 24. 40	41. 37. 6	39. 49. 45	38. 2. 35
10		36. 15. 40	34. 28. 56	32. 42. 32	30. 56. 26	29. 10. 40	27. 25. 17	25. 40. 20	23. 55. 49
11		22. 11. 47							
11	Spica ♍	75. 41. 2	73. 54. 15	72. 7. 39	70. 21. 14	68. 34. 59	66. 48. 55	65. 3. 3	63. 17. 22
12		61. 31. 53	59. 46. 36	58. 1. 30	56. 16. 37	54. 31. 56	52. 47. 26	51. 3. 9	49. 19. 5
13		47. 35. 13	45. 51. 34	44. 8. 8	42. 24. 55	40. 41. 55	38. 59. 6	37. 16. 31	35. 34. 9
14		33. 52. 1	32. 10. 7	30. 28. 27	28. 47. 0	27. 5. 49	25. 24. 52	23. 44. 10	22. 3. 44
15		20. 23. 32							
15	Antares.	65. 51. 42	64. 11. 22	62. 31. 15	60. 51. 19	59. 11. 36	57. 32. 4	55. 52. 45	54. 13. 39
16		52. 34. 45	50. 56. 4	49. 17. 36	47. 39. 21	46. 1. 19	44. 23. 29	42. 45. 53	41. 8. 30
17		39. 31. 20	37. 54. 23	36. 17. 40	34. 41. 12	33. 4. 58	31. 28. 59	29. 53. 16	28. 17. 48
18		26. 42. 36							
18	α Aquilæ	81. 45. 9	80. 19. 3	78. 53. 11	77. 27. 37	76. 2. 19	74. 37. 19	73. 12. 39	71. 48. 19
19		70. 24. 19	69. 0. 40	67. 37. 25	66. 14. 33	64. 52. 7	63. 30. 7	62. 8. 34	60. 47. 31
20		59. 26. 57							

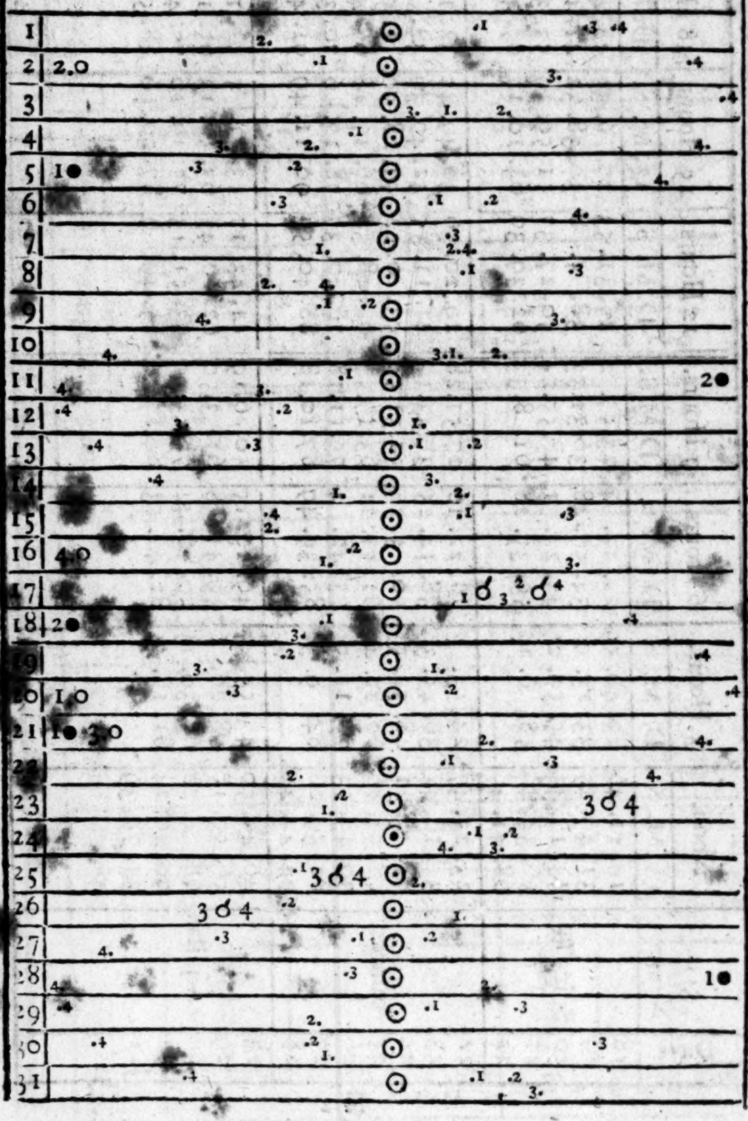
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S
20	Fomalhaut.	85. 35. 0	84. 11. 43	82. 48. 38	81,25.47	80. 3. 10	78. 40. 47	77. 18. 40	75.56 49
21		74. 35. 14	73. 13. 55	71. 52. 55	70.32.14	69. 11. 52	67. 51. 50	66. 32. 9	65.12.52
22		63. 53. 56	62. 35. 24	61. 17. 18	59.59.39	58. 42. 26	57. 25. 43	56. 9. 30	54.53.49
23		53. 38. 40							
23	α Pegaſi.	69. 32. 42	68. 6. 25	66. 40. 18	65.14.20	63. 48. 31	62. 22. 52	60. 57. 21	59.32. 1
24		58. 6. 50	56. 41. 48	55. 16. 56	53.52.14	52. 27. 43	51. 3. 22	49. 39. 13	48.15.17
25		46. 51. 33	45. 28. 2	44. 4. 47	42.41.46	41. 19. 0			
25	α Arietis.					82. 58. 53	81. 30. 30	80. 2. 5	78.33.35
26		77. 5. 3	75. 36. 25	74. 7. 42	72.38.52	71. 9. 57	69. 40. 54	68. 11. 44	66.42.25
27		65. 12. 59	63. 43. 24	62. 13. 38	60.43.43	59. 13. 38			
25	The Sun.	119. 34. 46	118. 13. 13	116. 51. 37	115.29.59	114. 8. 18	112. 46. 34	111. 24. 46	110. 2.53
26		108. 40. 56	107. 18. 54	105. 56. 45	104.34.30	103. 12. 8	101. 49. 39	100. 27. 0	99. 4.13
27		97. 41. 17	96. 18. 10	94. 54. 53	93.31.24	92. 7. 45	90. 43. 53	89. 19. 48	87.55.30
28		86. 30. 58	85. 6. 11	83. 41. 8	82.15.49	80. 50. 15	79. 24. 24	77. 58. 15	76.31.49
29		75. 5. 4	73. 38. 0	72. 10. 36	70.42.53	69. 14. 49	67. 46. 25	66. 17. 39	64.48.32
30		63. 19. 2	61. 49. 9	60. 18. 53	58.48.13	57. 17. 11	55. 45. 44	54. 13. 54	52.41.39
31		51. 9. 0	49. 35. 55	48. 2. 25	46.28.31	44. 54. 11	43. 19. 26	41. 44. 16	40. 8.40
J. 1		38. 32. 40							

Distances of ☽'s Center from Sun, and from Stars west of her.

Days.	Stars Names.	Noon. D. M. S.	3 Hours. D. M. S.	6 Hours. D. M. S.	9 Hours D.M.S.	12 Hours. D. M. S.	15 Hours. D. M. S.	18 Hours. D. M. S.	21 Hours. D. M. S.
1	α Aquilæ.	50. 17. 26	51. 35. 37	52. 54. 39	54.14.31	55. 35. 15	56. 56. 45	58. 18. 59	59.41.57
2		61. 5. 39	62. 30. 1	63. 55. 2	65.20.40	66. 46. 57	68. 13. 48	69. 41. 12	71. 9. 9
3		72. 37. 39	74. 6. 40	75. 36. 9	77. 6. 7	78. 36. 33	80. 7. 26	81. 38. 41	83.10.20
4		84. 42. 25							
8	The Sun.					40. 8. 33	41. 50. 13	43. 31. 51	45.13.28
9		46. 55. 4	48. 36. 36	50. 18. 4	51.59.28	53. 40. 47	55. 22. 1	57. 3. 8	58.44. 8
10		60. 25. 2	62. 5. 48	63. 46. 20	65.26.56	67. 7. 18	68. 47. 31	70. 27. 35	72. 7.30
11		73. 47. 15	75. 26. 49	77. 6. 13	78.45.26	80. 24. 29	82. 3. 21	83. 42. 2	85.20.33
12		86. 58. 52	88. 36. 59	90. 14. 55	91.52.39	93. 30. 12	95. 7. 33	96. 44. 41	98.21.38
13		99. 58. 23	101. 34. 55	103. 11. 15	104.47.24	106. 23. 20	107. 59. 5	109. 34. 38	111. 9.59
14		112. 45. 8	114. 20. 4	115. 54. 48	117.29.19	119. 3. 37			
12	Pollux.	31. 4. 33	32. 44. 46	34. 25. 8	36. 5.44	37. 46. 29	39. 27. 22	41. 8. 18	42.49.16
13		44. 30. 17	46. 11. 15	47. 52. 9	49.33. 1	51. 13. 50	52. 54. 33	54. 35. 11	56.15.43
14		57. 56. 7							
14	Regulus.	20. 58. 46	22. 37. 45	24. 16. 49	25.56. 2	27. 35. 21	29. 14. 44	30. 54. 7	32.33.29
15		34. 12. 51	35. 52. 4	37. 31. 11	39.10.13	40. 49. 8	42. 27. 55	44. 6. 35	45.45. 6
16		47. 23. 29	49. 1. 41	50. 39. 44	52.17.37	53. 55. 21	55. 32. 54	57. 10. 17	58 47.30
17		60. 24. 33	62. 1. 25	63. 38. 6	65.14.37	66. 50. 57	68. 27. 6	70. 3. 4	71.38.52
18		73. 14. 28							

Days.	Stars. Names	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D.M.S.	D. M. S.	D. M. S.	D. M. S.	D. M.S.
18	Spica ♍	19. 11. 46	20. 46. 59	22. 22. 4	23.57. 2	25. 51. 53	27. 6. 35	28. 41. 9	30.15.33
19		31. 49. 49	33. 23. 5	34. 57. 48	36.31.33	38. 5. 8	39. 38. 32	41. 11. 46	42.44.50
20		44. 17. 44	45. 50. 2	47. 23. 1	48.55.24	50. 27. 37	51. 59. 39	53. 31. 32	55. 3.15
21		56. 34. 49	58. 6. 1	59. 37. 28	61. 8.33	62. 39. 30	64. 10. 17	65. 40. 56	67.11.26
22		68. 41. 47							
22	Antares.	23. 23. 47	24. 53. 3	26. 22. 16	27.51.28	29. 20. 36	30. 49. 42	32. 18. 45	33.47.45
23		35. 16. 42	36. 45. 3	38. 14. 25	39.43.11	41. 11. 55	42. 40. 36	44. 9. 13	45.37.49
24		47. 6. 21	48. 34. 5	50. 3. 24	51.31.53	53. 0. 22	54. 28. 50	55. 57. 18	57.25.47
25		58. 54. 16	60. 22. 4	61. 51. 21	63.19.57	64. 48. 36	66. 17. 18	67. 46. 5	69.14.57
26		70. 43. 53	72. 12. 5	73. 42. 4	75.11.18	76. 40. 37	78. 10. 6	79. 39. 44	81. 9.30
27		82. 39. 26	84. 9. 3	85. 39. 49	87.10.18	88. 40. 57	90. 11. 49	91. 42. 53	93.14.11
28		94. 45. 42							
28	α Aquilæ.	46. 40. 50	47. 55. 5	49. 10. 15	50.26.19	51. 43. 17	53. 1. 5	54. 19. 42	55.39. 5
29		56. 59. 15	58. 20. 6	59. 41. 38	61. 3.50	62. 26. 43	63. 50. 13	65. 14. 20	66.39. 3
30		68. 4. 22	69. 30. 15	70. 56. 42	72.23.41	73. 51. 13	75. 19. 16	76. 47. 49	78.16.51
31		79. 46. 24	81. 16. 25	82. 46. 53	84.17.48	85. 49. 9	87. 20. 56	88. 53. 6	90.25.41
J. 1		91. 58. 39							

Configurations of the SATELLITES of JUPITER at Nine o' Clock in the Evening.



I. JUNE 1788.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	*Su.*	*2d Sun. after Tr.* Nicom
2	M.	In 15 days of H. Trin.
3	Tu.	[3 ret.
4	W.	*K. Geo. III. born* 1738.
5	Th.	*Pr. Ern. Aug. b.* Bonif.
6	F.	
7	Sa.	
8	*Su.*	*3d Sun. after Trinity.*
9	M.	In 3 w. of H. T. 4 ret.
10	Tu.	*Prs. Amelia born.*
11	W.	*St. Barnabas.* Tr. Term
12	Th.	[ends.
13	F.	
14	Sa.	
15	*Su.*	*4th Sunday after Trinity.*
16	M.	
17	Tu.	St. Alban.
18	W.	
19	Th.	
20	F.	Tr. of Edw. K. W. Sax.
21	Sa.	
22	*Su.*	*5th Sunday after Trinity.*
23	M.	
24	Tu.	*Nativity of St. John Bapt.*
25	W.	
26	Th.	
27	F.	
28	Sa.	
29	*Su.*	*6th Sunday after Trinity.*
30	M.	*[St. Peter.*

Phases of the Moon.

	D.	H.	M.
New Moon —	3.	20.	58
First Quarter —	10.	11.	38
Full Moon — —	18.	3.	26
Last Quarter —	25.	6.	40

Other Phenomena.

D.H.M.	
2.	♃ μ ♊ d.L. 48′
3.	☉ eclipſed, viſ.
5. 3.18	☾ ♃
17.46	☾ ζ ♊
7.15.22	☾ 1 ad α ♋
16.14	☾ 2 ad α ♋
8. 9.46	☾ ο ♌
18.13	☾ π ♌
10.13. 5	☾ ε ♌
12.	☿ ε ♊ d. L. 5′.
14.21. 5	☾ 1 ad ι ♎
15.19.29	☾ δ ♏
17.	♂ α ♌ d.L. 45′.
10.25	☾ β Ophiuchi.
19.	♄ Stationary.
9. 6½	Im of π ♐ * 0′¾
	S. of ☾'s cent.
10.22½	Em. * 1′⅔ S.
20. 8. 2	☉ enters ♋
22.28	☾ β ♑
27.16.33	☾ ν ♓
28.	♂ ρ ♌ d.L. 55′.
29.11.11	☾ δ ♈
30.	☿ δ ♋ d.L. 30′.

JUNE 1788.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. North.	Equat. of Time. Sub.	Diff.
		S. D. M. S.	H. M. S.	D.M.S.	M. S.	S.
1	*Su.*	2. 11. 31. 50	4.39.58,3	22.11.28	2. 31,4	
2	M.	2. 12. 29. 17	4.44. 4,3	22.19. 6	2. 21,9	9,5
3	Tu.	2. 13. 26. 43	4.48.10,8	22.26.20	2. 12,0	9,9
4	W.	2. 14. 24. 8	4.52.17,6	22 33.11	2. 1,8	10,2
5	Th.	2. 15. 21. 33	4.56.24,8	22.39.39	1. 51,2	10,6
6	F.	2. 16. 18. 56	5. 0.32,3	22.45.42	1. 40,3	10,9
7	Sa.	2. 17. 16. 19	5. 4.40,0	22.51.22	1. 29,2	11,1
8	*Su.*	2. 18. 13. 40	5. 8.48,0	22.56.38	1. 17,8	11,4
9	M.	2. 19. 11. 1	5.12.56,3	23. 1.29	1. 6,1	11,7
10	Tu.	2. 20. 8. 21	5.17. 4,7	23. 5.56	0 54,2	11,9
11	W.	2. 21. 5. 39	5.21.13,4	23. 9.59	0. 42,1	12,1
12	Th.	2. 22. 2. 56	5.25.22,2	23.13.38	0. 29,9	12,2
13	F.	2. 23. 0. 13	5.29.31,2	23.16.52	0. 17,5	12,4
14	Sa.	2. 23. 57. 29	5.33.40,3	23.19.41	0. 5,0	12,5
15	*Su.*	2. 24. 54. 44	5.37.49,5	23.22. 5	Ad: 7,6	12,6
16	M.	2. 25. 51. 58	5.41.58,8	23.24. 5	0. 20,3	12,7
17	Tu.	2. 26. 49. 12	5.46. 8,2	23.25.39	0. 33,1	12,8
18	W.	2. 27. 46. 25	5.50.17,6	23.26.50	0. 45,9	12,8
19	Th.	2. 28. 43. 38	5.54.27,0	23.27.35	0. 58,7	12,8
20	F.	2. 29. 40. 50	5.58.36,5	23.27.56	1. 11,6	12,9
21	Sa.	3. 0. 38. 3	6. 2.45,9	23.27.52	1. 24,4	12,8
22	*Su.*	3. 1. 35. 15	6. 6.55,3	23.27.23	1. 37,3	12,9
23	M.	3. 2. 32. 27	6.11. 4,7	23.26.30	1. 50,1	12,8
24	Tu.	3. 3. 29. 39	6.15.14,0	23.25.12	2. 2,8	12,7
25	W.	3. 4. 26. 51	6.19.23,2	23.23.28	2. 15,4	12,6
26	Th.	3. 5. 24. 3	6.23.32,3	23.21.20	2. 27,9	12,5
27	F.	3. 6. 21. 16	6.27.41,3	23.18.48	2. 40,3	12,4
28	Sa.	3. 7. 18. 29	6.31.50,1	23.15.51	2. 52,5	12,2
29	*Su.*	3. 8. 15. 42	6.35.58,8	23.12.29	3. 4,6	12,1
30	M.	3. 9. 12. 56	6.40. 7,2	23. 8.43	3. 16,5	11,9

Days.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	15. 48,8	1. 8,3	2. 23,6	0. 006396	8. 17. 16
7	15. 48,1	1. 8,6	2. 23,3	0. 006709	8. 16. 57
13	15. 47,5	1. 8,8	2. 23,2	0. 006932	8. 16. 38
19	15. 47,1	1. 8,8	2. 23,0	0. 007098	8. 16. 19
25	15. 46,9	1. 8,8	2. 23,0	0. 007213	8. 16. 0

The Eclipſes of JUPITER's Satellites will not be viſible this Month, JUPITER being too near the SUN.

Days.	Heliocentric Longitude. S. D. M.	Heliocentric Latitude. D. M.	Geocentric Longitude. S. D. M.	Geocentric Latitude. D. M.	Declination. D. M.	Passage over Merid. H. M.
			MERCURY.			
1	2. 19. 1	3. 51 N	2. 13. 16	0. 54 N	23. 19 N	0. 7
4	3. 7. 49	5. 31	2. 19. 49	1. 19	24. 23	0. 23
7	3. 25. 53	6. 35	2. 26. 13	1. 39	25. 4	0. 39
10	4. 12. 46	6. 59	3. 2. 22	1. 52	25. 19	0. 53
13	4. 28. 14	6. 50	3. 8. 13	1. 59	25. 12	1. 7
16	5. 12. 16	6. 16	3. 13. 44	1. 59	24. 44	1. 19
19	5. 25. 1	5. 26	3. 18. 54	1. 53	24. 0	1. 28
22	6. 6. 39	4. 26	3. 23. 43	1. 41	23. 2	1. 37
25	6. 17. 21	3. 21	3. 28. 11	1. 23	21. 55	1. 43
28	6. 27. 18	2. 14	4. 2. 16	1. 0	20. 40	1. 47
30	7. 3. 36	1. 29	4. 4. 47	0. 42	10. 47	1. 49
			VENUS.			
1	6. 28. 48	2. 26 N	3. 26. 49	2. 33 N	23. 19 N	3. 18
7	7. 8. 25	2. 1	4. 2. 18	2. 16	21. 53	3. 16
13	7. 18. 1	1. 32	4. 7. 27	1. 52	20. 14	3. 12
19	7. 27. 36	1. 0	4. 12. 8	1. 20	18. 28	3. 5
25	8. 7. 9	0. 27	4. 16. 16	0. 39	16. 36	2. 56
			MARS.			
1	5. 21. 55	1. 32 N	4. 17. 47	1. 26 N	16. 53 N	4. 42
7	5. 24 34	1. 29	4. 21. 7	1. 21	15. 45	4. 31
13	5. 27. 14	1. 26	4. 24. 29	1. 16	14. 34	4. 19
19	5. 29. 55	1. 23	4. 27. 54	1. 11	13. 20	4. 7
25	6. 2. 35	1. 19	5. 1. 21	1. 6	12. 2	3. 55
			JUPITER ☍ 29^{d}. 5½^{h}.			
1	3. 6. 6	0. 4 S.	3. 2. 8	0. 3 S	23. 24 N	1. 29
7	3. 6. 36	0. 3	3. 3. 28	0. 3	23. 24	1. 10
13	3. 7. 6	0. 2	3. 4. 48	0. 2	23. 21	0. 51
19	3. 7. 36	0. 2	3. 6. 9	0. 1	23. 18	0. 32
25	3. 8. 7	0. 1	3. 7. 31	0. 1	23. 15	0. 13
			SATURN.			
1	11. 4. 43	1. 42 S	11. 10. 42	1. 43 S	9. 9 S	18. 9
7	11. 4. 55	1. 43	11. 10. 52	1. 44	9. 7	17. 44
13	11. 5. 6	1. 43	11. 10. 58	1. 46	9. 6	17. 20
19	11. 5. 18	1. 43	11. 11. 0	1. 47	9. 6	16. 55
25	11. 5. 29	1. 44	11. 10. 59	1. 49	9. 8	16. 30

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	*Su.*	1. 3. 8. 4	1. 10. 4. 37	3. 40. 19 N	3. 11. 3 N
2	M.	1. 17. 7. 14	1. 24. 15. 34	2. 38. 28	2. 2. 57
3	Tu.	2. 1. 29. 3	2. 8. 47. 5	1. 25. 6	0. 45. 26 N
4	W.	2. 16. 8. 50	2. 23. 33. 29	0. 4. 40 N	0. 36. 27 S
5	Th.	3. 1. 0. 0	3. 8. 27. 24	1. 17. 8 S	1. 56. 33
6	F.	3. 15. 54. 44	3. 23. 21. 0	2. 33. 58	3. 8. 41
7	Sa.	4. 0. 45. 19	4. 8. 6. 52	3. 40. 4	4. 7. 35
8	*Su.*	4. 15. 25. 2	4. 22. 39. 10	4. 30. 49	4. 49. 34
9	M.	4. 29. 48. 56	5. 6. 53. 55	5. 3. 33	5. 12. 45
10	Tu.	5. 13. 54. 1	5. 20. 49. 1	5. 17. 10	5. 16. 56
11	W.	5. 27. 39. 2	6. 4. 23. 59	5. 12. 11	5. 3. 9
12	Th.	6. 11. 4. 9	6. 17. 39. 32	4. 50. 9	4. 33. 25
13	F.	6. 24. 10. 31	7. 0. 37. 13	4. 13. 20	3. 50. 15
14	Sa.	7. 6. 59. 58	7. 13. 19. 0	3. 24. 31	2. 56. 32
15	*Su.*	7. 19. 34. 38	7. 25. 47. 5	2. 26. 39	1. 55. 17
16	M.	8. 1. 56. 44	8. 8. 3. 43	1. 22. 50	0. 49. 38 S
17	Tu.	8. 14. 8. 24	8. 20. 10. 57	0. 16. 6 S	0. 17. 26 N
18	W.	8. 26. 11. 41	9. 2. 10. 46	0. 50. 34 N	1. 22. 59
19	Th.	9. 8. 8. 31	9. 14. 5. 9	1. 54. 21	2. 24. 22
20	F.	9. 20. 0. 56	9. 25. 56. 9	2. 52. 43	3. 19. 8
21	Sa.	10. 1. 51. 5	10. 7. 46. 7	3. 43. 24	4. 5. 16
22	*Su.*	10. 13. 41. 31	10. 19. 37. 44	4. 24. 30	4. 40. 56
23	M.	10. 25. 35. 8	11. 1. 34. 9	4. 54. 23	5. 4. 43
24	Tu.	11. 7. 35. 16	11. 13. 38. 55	5. 11. 44	5. 15. 22
25	W.	11. 19. 49. 37	11. 25. 55. 53	5. 15. 27	5. 11. 56
26	Th.	0. 2. 10. 10	0. 8. 29. 1	5. 4. 42	4. 53. 43
27	F.	0. 14. 52. 54	0. 21. 22. 18	4. 38. 59	4. 20. 29
28	Sa.	0. 27. 57. 34	1. 4. 39. 5	3. 58. 17	3. 32. 30
29	*Su.*	1. 11. 27. 7	1. 18. 21. 51	3. 3. 21	2. 31. 2
30	M.	1. 25. 23. 15	2. 2. 31. 16	1. 55. 56	1. 18. 33

JUNE 1788.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſs-age over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s De-clination at Noon.	☽'s De-clination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	*Su.*	28	22. 7	29. 36	36. 36	16. 1 N	17. 53 N
2	M.	29	23. 6	43. 51	51. 20	19. 30	20. 50
3	Tu.	1	☌	59. 3	66. 56	21. 52	22. 32
4	W.	2	0. 8	74. 57	83. 1	22. 49	22. 42
5	Th.	3	1. 11	91. 5	99. 4	22. 11	21. 16
6	F.	4	2. 13	106. 57	114. 39	19. 58	18. 21
7	Sa.	5	3. 11	122. 9	129. 26	16. 26	14. 16
8	*Su.*	6	4. 6	136. 31	143. 25	11. 55	9. 24
9	M.	7	4. 58	150. 8	156. 42	6. 48	4. 8 N
10	Tu.	8	5. 47	163. 8	169. 29	1. 27 N	1. 13 S
11	W.	9	6. 34	175. 46	182. 1	3. 50 S	6. 23
12	Th.	10	7. 22	188. 15	194. 30	8. 50	11. 9
13	F.	11	8. 10	200. 47	207. 6	13. 19	15. 18
14	Sa.	12	8. 58	213. 29	219. 55	17. 5	18. 39
15	*Su.*	13	9. 48	226. 25	232. 58	20. 0	21. 6
16	M.	14	10. 38	239. 33	246. 9	21. 56	22. 30
17	Tu.	15	11. 28	252. 45	259. 20	22. 48	22. 49
18	W.	16	12. 18	265. 53	272. 21	22. 34	22. 4
19	Th.	17	13. 6	278. 44	285. 2	21. 19	20. 20
20	F.	18	13. 52	291. 13	297. 17	19. 8	17. 44
21	Sa.	19	14. 36	303. 15	309. 6	16. 9	14. 24
22	*Su.*	20	15. 19	314. 52	320. 33	12. 31	10. 30
23	M.	21	16. 1	326. 11	331. 46	8. 23	6. 11
24	Tu.	22	16. 42	337. 20	342. 55	3. 55 S	1. 35 S
25	W.	23	17. 25	348. 32	354. 12	0. 47 N	3. 9 N
26	Th.	24	18. 9	359. 58	5. 50	5. 31	7. 52
27	F.	25	18. 56	11. 52	18. 5	10. 9	12. 22
28	Sa.	26	19. 47	24. 30	31. 8	14. 28	16. 25
29	*Su.*	27	20. 42	38. 1	45. 10	18. 11	19. 43
30	M.	28	21. 42	52. 33	60. 10	21. 0	21. 58

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon.	Semid^{r}. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	*Su.*	15. 57	16. 4	58. 32	58. 58	4878	4846
2	M.	16. 11	16. 17	59. 23	59. 46	4816	4788
3	Tu.	16. 23	16. 28	60. 6	60. 24	4764	4742
4	W.	16. 31	16. 34	60. 38	60. 48	4725	4714
5	Th.	16. 35	16. 35	60. 53	60. 55	4708	4705
6	F.	16. 35	16. 34	60. 52	60. 46	4709	4716
7	Sa.	16. 31	16. 27	60. 36	60. 23	4728	4743
8	*Su.*	16. 23	16. 18	60. 8	59. 50	4761	4783
9	M.	16. 13	16. 8	59. 31	59. 11	4806	4831
10	Tu.	16. 2	15. 56	58. 50	58. 29	4856	4882
11	W.	15. 50	15. 45	58. 7	57. 46	4910	4936
12	Th.	15. 39	15. 34	57. 25	57. 6	4962	4986
13	F.	15. 28	15. 23	56. 47	56. 29	5010	5033
14	Sa.	15. 19	15. 14	56. 12	55. 56	5055	5076
15	*Su.*	15. 10	15. 7	55. 41	55. 27	5095	5114
16	M.	15. 3	15. 0	55. 14	55. 2	5130	5146
17	Tu.	14. 57	14. 54	54. 51	54. 42	5161	5173
18	W.	14. 52	14. 50	54. 33	54. 26	5185	5194
19	Th.	14. 48	14. 47	54. 20	54. 14	5202	5210
20	F.	14. 46	14. 45	54. 10	54. 9	5215	5217
21	Sa.	14. 45	14. 46	54. 9	54. 11	5217	5214
22	*Su.*	14. 47	14. 48	54. 14	54. 18	5210	5205
23	M.	14. 50	14. 52	54. 25	54. 35	5195	5182
24	Tu.	14. 55	14. 59	54. 46	55. 0	5167	5149
25	W.	15. 4	15. 9	55. 16	55. 34	5128	5104
26	Th.	15. 14	15. 20	55. 54	56. 16	5079	5050
27	F.	15. 27	15. 34	56. 40	57. 6	5019	4986
28	Sa.	15. 41	15. 49	57. 34	58. 2	4951	4916
29	*Su.*	15. 57	16. 4	58. 31	58. 59	4880	4845
30	M.	16. 12	16. 19	59. 27	59. 53	4811	4779

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
5	Regulus.	55. 55. 3	54. 3. 37	52. 12. 9	50. 20. 44	48. 29. 22	46. 38. 4	44. 46. 53	42. 55. 50
6		41. 4. 55	39. 14. 9	37. 23. 38	35. 33. 22	33. 43. 21	31. 53. 35	30. 4. 13	28. 15. 18
7		26. 26. 49	24. 38. 53	22. 51. 35	21. 4. 57	19. 19. 3			
7	Spica ♍					72. 41. 20	70. 51. 38	69. 2. 14	67. 13. 5
8		65. 24. 13	63. 35. 38	61. 47. 20	59. 59. 19	58. 11. 36	56. 24. 10	54. 37. 3	52. 50. 15
9		51. 3. 45	49. 17. 35	47. 31. 45	45. 46. 14	44. 1. 2	42. 16. 9	40. 31. 36	38. 47. 24
10		37. 3. 31	35. 19. 59	33. 36. 47	31. 53. 56	30. 11. 26	28. 29. 16	26. 47. 27	25. 5. 58
11		23. 24. 50							
11	Antares.	68. 53. 18	67. 12. 15	65. 31. 29	63. 51. 1	62. 10. 50	60. 30. 56	58. 51. 20	57. 12. 1
12		55. 33. 0	53. 54. 17	52. 15. 51	50. 37. 42	48. 59. 50	47. 22. 13	45. 44. 52	44. 7. 48
13		42. 30. 59	40. 54. 27	39. 18. 11	37. 42. 11	36. 6. 27	34. 30. 59	32. 55. 47	31. 20. 50
14		29. 46. 10							
14	α Aquilæ.	84. 32. 36	83. 6. 59	81. 41. 36	80. 16. 27	78. 51. 35	77. 26. 58	76. 2. 39	74. 38. 38
15		73. 14. 55	71. 51. 31	70. 28. 28	69. 5. 46	67. 43. 25	66. 21. 26	64. 59. 49	63. 38. 37
16		62. 17. 48							
16	Fomal-haut.	88. 30. 56	87. 8. 6	85. 45. 26	84. 22. 55	83. 0. 34	81. 38. 24	80. 16. 26	78. 54. 41
17		77. 33. 7	76. 11. 47	74. 50. 43	73. 29. 53	72. 9. 19	70. 49. 0	69. 28. 59	68. 9. 15
18		66. 49. 48							

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
18	α Pegaſi.	84. 23. 38	82. 56. 7	81. 28. 44	80. 1. 28	78. 34. 20	77. 7. 19	75. 40. 25	74. 13. 39
19		72. 47. 0	71. 20. 28	69. 54. 4	68. 27. 48	67. 1. 40	65. 35. 41	64. 9. 50	62. 44. 8
20		61. 18. 34	59. 53. 9	58. 27. 53	57. 2. 48	55. 37. 51	54. 13. 5	52. 48. 30	51. 24. 8
21		49. 59. 56	48. 35. 58	47. 12. 12	45. 48. 41	44. 25. 23			
21	α Arietis.					86. 17. 8	84. 49. 0	83. 20. 49	81. 52. 38
22		80. 24. 26	78. 56. 12	77. 27. 56	75. 59. 37	74. 31. 17	73. 2. 53	71. 34. 26	70. 5. 55
23		68. 37. 21	67. 8. 42	65. 39. 58	64. 11. 8	62. 42. 14	61. 13. 13	59. 44. 6	58. 14. 51
24		56. 45. 31	55. 16. 3	53. 46. 27	52. 16. 44	50. 46. 52			
24	Aldebaran.					83. 45. 2	82. 14. 37	80. 44. 1	79. 13. 12
25		77. 42. 12	76. 10. 58	74. 39. 31	73. 7. 50	71. 35. 55	70. 3. 45	68. 31. 21	66. 58. 40
26		65. 25. 44	63. 52. 31	62. 19. 1	60. 45. 13	59. 11. 8			
23	The Sun.					121. 18. 39	119. 56. 4	118. 33. 21	117. 10. 31
24		115. 47. 32	114. 24. 24	113. 1. 5	111. 37. 37	110. 13. 59	108. 50. 9	107. 26. 7	106. 1. 52
25		104. 37. 26	103. 12. 45	101. 47. 51	100. 22. 42	98. 57. 19	97. 31. 41	96. 5. 46	94. 39. 35
26		93. 13. 7	91. 46. 21	90. 19. 17	88. 51. 53	87. 24. 12	85. 56. 10	84. 27. 48	82. 59. 6
27		81. 30. 3	80. 0. 38	78. 30. 50	77. 0. 40	75. 30. 8	73. 59. 12	72. 27. 52	70. 56. 9
28		69. 24. 1	67. 51. 28	66. 18. 31	64. 45. 8	63. 11. 20	61. 37. 5	60. 2. 25	58. 27. 18
29		56. 51. 46	55. 15. 47	53. 39. 22	52. 2. 30	50. 25. 13	48. 47. 29	47. 9. 19	45. 30. 44
30		43. 51. 43	42. 12. 16	40. 32. 25	38. 52. 8				

Distances of ☽'s Center from Sun, and from Stars west of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	α Pegasi.	44. 25. 11	46. 2. 29	47. 40. 28	49. 19. 9	50. 58. 33	52. 38. 35	54. 19. 13	56. 0. 26
2		57. 42. 15	59. 24. 38	61. 7. 28	62. 50. 48	64. 34. 39			
6	The Sun.					36. 40. 21	38. 24. 38	40. 8. 45	41. 52. 41
7		43. 36. 25	45. 19. 57	47. 3. 16	48. 46. 22	50. 29. 15	52. 11. 53	53. 54. 15	55. 36. 22
8		57. 18. 14	58. 59. 48	60. 41. 5	62. 22. 5	64. 2. 48	65. 43. 13	67. 23. 19	69. 3. 8
9		70. 42. 38	72. 21. 48	74. 0. 40	75. 39. 13	77. 17. 27	78. 55. 23	80. 32. 59	82. 10. 17
10		83. 47. 16	85. 23. 54	87. 0. 14	88. 36. 15	90. 11. 58	91. 47. 22	93. 22. 29	94. 57. 16
11		96. 31. 46	98. 5. 55	99. 39. 48	101. 13. 22	102. 46. 39	104. 19. 40	105. 52. 24	107. 24. 51
12		108. 57. 1	110. 28. 53	112. 0. 28	113. 31. 48	115. 2. 52	116. 33. 40	118. 4. 14	119. 34. 34
13		121. 4. 40							
10	Regulus.					24. 34. 16	26. 14. 21	27. 54. 20	29. 34. 14
11		31. 14. 2	32. 53. 42	34. 33. 13	36. 12. 34	37. 51. 46	39. 30. 45	41. 9. 31	42. 48. 6
12		44. 26. 28	46. 4. 35	47. 42. 29	49. 20. 10	50. 57. 38	52. 34. 53	54. 11. 54	55. 48. 43
13		57. 25. 18	59. 1. 39	60. 37. 48	62. 13. 44	63. 49. 27	65. 24. 58	67. 0. 16	68. 35. 23
14		70. 10. 17	71. 44. 59	73. 19. 29	74. 53. 48	76. 27. 54			
14	Spica ♍					22. 24. 52	23. 58. 45	25. 32. 30	27. 6. 5
15		28. 39. 32	30. 12. 50	31. 45. 59	33. 19. 0	34. 51. 52	36. 24. 36	37. 57. 12	39. 29. 39
16		41. 1. 57	42. 34. 6	44. 6. 7	45. 37. 59	47. 9. 44	48. 41. 20	50. 12. 49	51. 44. 10

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S	D. M. S.	D. M. S.	D. M. S.
17	Spica ♍	53.15.24	54.46.29	56.17.28	57.48.19	59.19.3	60.49.40	62.20.11	63.50.35
18		65.20.54							
18	Antares.	20.5.27	21.34.21	23.3.17	24.32.15	26.1.14	27.30.14	28.59.13	30.28.12
19		31.57.10	33.26.4	34.54.57	36.23.48	37.52.38	39.21.23	40.50.8	42.18.50
20		43.47.32	45.16.8	46.44.45	48.13.19	49.41.51	51.10.23	52.38.53	54.7.22
21		55.35.52	57.4.21	58.32.49	60.1.18	61.29.47	62.58.16	64.26.47	65.55.19
22		67.23.52	68.52.27	70.21.5	71.49.47	73.18.32	74.47.20	76.16.12	77.45.9
23		79.14.12	80.43.18	82.12.31	83.41.51	85.11.17	86.40.49	88.10.31	89.40.20
24		91.10.18	92.40.25	94.10.41	95.41.8	97.11.44			
24	α Aquilæ.					48.40.4	49.54.41	51.10.5	52.26.15
25		53.43.10	55.0.48	56.19.7	57.38.5	58.57.42	60.17.54	61.38.41	63.0.3
26		64.21.59	65.44.28	67.7.27	68.30.59	69.55.1	71.19.32	72.44.32	74.10.1
27		75.35.59	77.2.25	78.29.17	79.56.36	81.24.23			
27	α Pegasi.					33.36.55	35.5.25	36.34.52	38.5.18
28		39.36.46	41.9.7	42.42.18	44.16.18	45.51.8	47.26.39	49.2.53	50.39.49
29		52.17.26	53.55.46	55.34.35	57.14.9	58.54.12	60.34.53	62.16.7	63.57.55
30		65.40.15	67.23.7	69.6.30	70.50.23	72.34.44	74.19.33	76.4.49	77.50.30
J.1		79.36.37							

The Satellites of JUPITER will not be viſible this Month, being too near the SUN.

I.

JULY 1788.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Tu.	Camb. Commencement.
2	W.	Visit. of B.V. Mary.
3	Th.	
4	F.	Translat. of St. Martin.
5	Sa.	[Camb. Term ends.
6	*Su.*	*7th Sunday after Trinity.*
7	M.	
8	Tu.	
9	W.	
10	Th.	
11	F.	
12	Sa.	
13	*Su.*	*8th Sunday after Trinity.*
14	M.	Oxford Act.
15	Tu.	Swithin.
16	W.	
17	Th.	
18	F.	
19	Sa.	Oxford Term ends.
20	*Su.*	*9th Sunday after Trinity.*
21	M.	[Margaret.
22	Tu.	Magdalen.
23	W.	
24	Th.	
25	F.	*St. James.*
26	Sa.	St. Anne.
27	*Su.*	*10th Sunday after Trinity.*
28	M.	
29	Tu.	
30	W.	
31	Th.	

Phases of the Moon.

	D. H. M.
New Moon —	3. 4. 15
First Quarter —	9. 19. 33
Full Moon —	17. 18. 34
Last Quarter —	25. 18. 10

Other Phenomena.

D.H.M.	
5. 0.24	☾ 1 ad α ♋
1.15	☾ 2 ad α ♋
5.17	☾ κ ♋
18.14	☾ ο ♌
6. 2.25	☾ π ♌
7.19.58	☾ e ♌
12.	♂ χ ♌ d.Lat.27′
2.38	☾ 1 ad ι ♎
13. 1. 4	☾ δ ♏
14.16.15	☾ β Ophiu.
16.13.55	☾ ο ♐
16.28	☾ π ♐
17.	♀ Stationary.
19.	♂ σ ♌ d.Lat.54′.
20.	☿ Stationary.
21.18.53	☉ enters ♌
26.19.38	☾ δ ♈
29.19.58	☾ ν ♊
22.59	☾ μ ♊
30.14.36	☾ ζ ♊
31.	♃ δ ♊ d.Lat.9′.

JULY 1788.

II.

Days of the Month	Days of the Week.	Sun's Longitude.	Sun's Right Afc. in Time.	Sun's Declin. North.	Equat. of Time. Add.	Diff
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Tu.	3. 10.10. 9	6.44.15,4	23. 4.34	3. 28,1	
2	W.	3. 11. 7.23	6.48.23,4	23. 0. 0	3. 39,5	11,4
3	Th.	3. 12. 4.37	6.52.31,1	22.55. 1	3. 50,6	11,1
4	F.	3. 13. 1.51	6.56.38,5	22.49.38	4. 1,4	10,8
5	Sa.	3. 13.59. 5	7. 0.45,5	22.43.52	4. 11,6	10,4
6	*Su.*	3. 14.56.19	7. 4.52,1	22.37.42	4. 21,9	10,1
7	M.	3. 15.53.33	7. 8.58,4	22.31. 8	4. 31,6	9,7
8	Tu.	3. 16.50.47	7.13. 4,3	22.24.11	4. 40,9	9,3
9	W.	3. 17.48. 0	7.17. 9,8	22.16.51	4. 49,8	8,9
10	Th.	3. 18.45.14	7.21.14,8	22. 9. 8	4. 58,3	8,5
11	F.	3. 19.42.28	7.25.19,4	22. 1. 2	5. 6,3	8,0
12	Sa.	3. 20.39.42	7.29.23,5	21.52.33	5. 13,8	7,5
13	*Su.*	3. 21.36.55	7.33.27,0	21.43.42	5. 20,8	7,0
14	M.	3. 22.34. 9	7.37.30,1	21.34.29	5. 27,3	6,5
15	Tu.	3. 23.31.23	7.41.32,7	21.24.53	5. 33,3	6,0
16	W.	3. 24.28.37	7.45.34,7	21.14.56	5. 38,7	5,4
17	Th.	3. 25.25.52	7.49.36,2	21. 4.38	5. 43,6	4,9
18	F.	3. 26.23. 7	7.53.37,2	20.53.58	5. 48,0	4,4
19	Sa.	3. 27.20.23	7.57.37,7	20.42.56	5. 51,9	3,9
20	*Su.*	3. 28.17.39	8. 1.37,6	20.31.34	5. 55,3	3,4
21	M.	3. 29.14.56	8. 5.36,9	20.19.51	5. 58,1	2,8
22	Tu.	4. 0.12.14	8. 9.35,7	20. 7.48	6. 0,3	2,2
23	W.	4. 1. 9.33	8.13.34,0	19.55.24	6. 1,9	1,6
24	Th.	4. 2. 6.53	8.17.31,7	19.42.40	6. 3,0	1,1
25	F	4. 3. 4.14	8.21.28,8	19.29.36	6. 3,6	0,6
26	Sa.	4. 4. 1.36	8.25.25,3	19.16.14	6. 3,6	0,0
27	*Su.*	4. 4.58.59	8.29.21,2	19. 2.32	6. 3,0	0,6
28	M.	4. 5.56.23	8.33.16,6	18.48.30	6. 1,8	1,2
29	Tu.	4. 6.53.48	8.37.11,4	18.34.10	6. 0,1	1,7
30	W.	4. 7.51.14	8.41. 5,6	18.19.32	5. 57,8	2,3
31	Th.	4. 8.48.42	8.44.59,3	18. 4.36	5. 54,9	2,9

Days.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon Node.
	M. S.	M. S.	M. S.		S. D. M.
1	15. 46,9	1. 8,6	2. 23,0	0. 007256	8. 15. 40
7	15. 47,0	1. 8,3	2. 23,0	0. 007204	8. 15. 21
13	15. 47,2	1. 8,0	2. 23,1	0. 007065	8. 15. 2
19	15. 47,7	1. 7,6	2. 23,2	0. 006863	8. 14. 43
25	15. 48,3	1. 7,1	2. 23,4	0. 006615	8. 14. 24

The Eclipſes of the Satellites of JUPITER will not be viſible this Month, JUPITER being too near the Sun.

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Passage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
	MERCURY. Gr. Elong. 4^d.					
1	7. 6. 40	1. 7 N	4. 5. 58	0. 33 N	19. 20 N	1. 50
4	7. 15. 35	0. 2 N	4. 9. 16	0. 1 N	17. 58	1. 50
7	7. 24. 11	1. 1 S	4. 12. 7	0. 34 S	16. 38	1. 49
10	8. 2. 33	2. 1	4. 14. 28	1. 13	15. 21	1. 45
13	8. 10. 49	2. 57	4. 16. 15	1. 53	14. 9	1. 39
16	8. 19. 3	3. 51	4. 17. 24	2. 34	13. 10	1. 31
19	8. 27. 21	4. 39	4. 17. 53	3. 16	12. 23	1. 20
22	9. 5. 50	5. 22	4. 17. 37	3. 54	11. 51	1. 6
25	9. 14. 34	5. 59	4. 16. 37	4. 26	11. 39	0. 50
28	9. 23. 40	6. 29	4. 14. 56	4. 47	11. 48	0. 31
31	10. 3. 15	6. 50	4. 12. 48	4. 55	12. 16	0. 11
	VENUS.					
1	8. 16. 40	0. 7 S	4. 19. 42	0. 11 S	14. 46 N	2. 43
7	8. 26. 12	0. 40	4. 22. 18	1. 11	12. 58	2. 28
13	9. 5. 40	1. 13	4. 23. 50	2. 21	11. 22	2. 8
19	9. 15. 9	1. 43	4. 24. 5	3. 38	10. 4	1. 42
25	9. 24. 38	2. 10	4. 22. 55	5. 1	9. 9	1. 13
	MARS.					
1	6. 5. 17	1. 15 N	5. 4. 5[illegible]	1. 2 N	10. 42 N	3 44
7	6. 8. 0	1. 11	5. 8. 25	0. 57	9. 18	3. 33
13	6. 10. 45	1. 7	5. 12. 1	0. 53	7. 52	3. 22
19	6. 13. 30	1. 3	5. 15. 39	0. 48	6. 24	3. 11
25	6. 16. 15	0. 59	5. 19. 20	0. 44	4. 54	3. 0
	JUPITER.					
1	3. 8. 36	0. 0	3. 8. 52	0. 0	23. 10 N	23. 51
7	3. 9. 6	0. 0	3. 10. 13	0. 0	23. 5	23. 32
13	3. 9. 36	0. 1 N	3. 11. 34	0. 1 N	22. 59	23. 14
19	3. 10. 6	0. 2	3. 12. 55	0. 1	22. 52	22. 56
25	3. 10. 36	0. 2	3. 14. 15	0. 2	22. 44	22. 38
	SATURN.					
1	11. 5. 41	1. 44 S	11. 10. 55	1. 50 S	9. 11 S	4. 7
7	11. 5. 52	1. 44	11. 10. 46	1. 52	9. 16	3. 42
13	11. 6. 4	1. 45	11. 10. 35	1. 53	9. 22	3. 17
19	11. 6. 15	1. 45	11. 10. 20	1. 54	9. 28	2. 52
25	11. 6. 27	1. 46	11. 10. 3	1. 55	9. 35	2. 27

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	Tu.	2. 9.45.36	2. 17. 5.45	0.39.21 N	0. 1. 0 S
2	W.	2. 24.31. 5	3. 2. 0.44	0.41.47 S	1.22.12
3	Th.	3. 9.33.40	3. 17. 8.48	2. 1.27	2.38.42
4	F.	3. 24.44.48	4. 2.20.28	3.13.11	3.44.11
5	Sa.	4. 9.54.31	4. 17.25.46	4.11. 7	4.33.30
6	*Su.*	4. 24.53.11	5. 2.15.48	4.51. 4	5. 3.34
7	M.	5. 9.32.58	5. 16.44. 1	5.10.59	5.13.23
8	Tu.	5. 23.48.41	6. 6.46.50	5.10.57	5. 3.57
9	W.	6. 7.38.21	6. 14.23.20	4.52.40	4.37.30
10	Th.	6. 21. 2. 8	6. 27.34.55	4.18.47	3.56.57
11	F.	7. 4. 2.12	7. 10.24.18	3.32.24	3. 5.31
12	Sa.	7. 16.41.48	7. 22.55. 4	2.36.42	2. 6.21
13	*Su.*	7. 29. 4.43	8. 5.11. 4	1.34.49	1. 2.30 S
14	M.	8. 11.14.45	8. 17.16. 3	0.29.43 S	0. 3. 8 N
15	Tu.	8. 23.15.30	8. 29.13.22	0.35.47 N	1. 7.49
16	W.	9. 5.10. 8	9. 11. 5.59	1.39. 1	2. 8.59
17	Th.	9. 17. 1.20	9. 22.56.21	2.37.39	3. 4.13
18	F.	9. 28.51.21	10. 4.46.30	3.28.56	3.51.22
19	Sa.	10. 10.42. 6	10. 16.38.19	4.11.18	4.28.33
20	*Su.*	10. 22.35.26	10. 28.33.38	4.42.53	4.54.11
21	M.	11. 4.33.16	11. 10.34.28	5. 2.18	5. 7. 5
22	Tu.	11. 16.37.42	11. 22.43.10	5. 8.29	5. 6.24
23	W.	11. 28.51.19	0. 5. 2.29	5. 0.47	4.51.38
24	Th.	0. 11.17. 5	0. 17.35.32	4.38.57	4.22.46
25	F.	0. 23.58.18	1. 0.25.44	4. 3. 8	3.40.12
26	Sa.	1. 6.58.23	1. 13.36.32	3.14. 4	2.44.58
27	*Su.*	1. 20.20.36	1. 27.10.53	2.13.10	1.38.58
28	M.	2. 4. 7.36	2. 11.10.48	1. 2.49 N	0.25.10 N
29	Tu.	2. 18.20.30	2. 25.36.28	0.13.26 S	0.52.21 S
30	W.	3. 2.58.17	3. 10.25.24	1.30.52	2. 8.15
31	Th.	3. 17.56.56	3. 25.31.54	2.43.43	3.16.31

JULY 1788. VI

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcenſ. at Noon.	☽'s Right Aſcenſ. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	Tu.	29	22. 45	68. 0	75. 58	22. 35 N	22. 49 N
2	W.	30	23. 48	84. 3	92. 10	22. 39	22. 5
3	Th.	1	0	100. 15	108. 14	21. 6	19. 44
4	F.	2	0. 50	116. 4	123. 44	18. 2	16. 1
5	Sa.	3	1. 49	131. 12	138. 28	13. 45	11. 17
6	*Su.*	4	2. 44	145. 32	152. 26	8. 40	5. 57
7	M.	5	3. 35	159. 10	165. 46	3. 12 N	0. 26 N
8	Tu.	6	4. 24	172. 16	178. 42	2. 18 S	4. 57 S
9	W.	7	5. 13	185. 4	191. 25	7. 31	9. 56
10	Th.	8	6. 2	197. 46	204. 8	12. 13	14. 18
11	F.	9	6. 50	210. 32	216. 58	16. 13	17. 54
12	Sa.	10	7. 40	223. 26	229. 56	19. 21	20. 34
13	*Su.*	11	8. 30	236. 29	243. 3	21. 31	22. 12
14	M.	12	9. 20	249. 37	256. 10	22. 38	22. 48
15	Tu.	13	10. 9	262. 42	269. 10	22. 42	22. 20
16	W.	14	10. 58	275. 34	281. 53	21. 43	20. 52
17	Th.	15	11. 45	288. 6	294. 13	19. 47	18. 29
18	F.	16	12. 30	300. 15	306. 10	17. 0	15. 21
19	Sa.	17	13. 14	311. 59	317. 43	13. 32	11. 35
20	*Su.*	18	13. 56	323. 23	329. 0	9. 32	7. 23
21	M.	19	14. 37	334. 35	340. 8	5. 9	2. 52 S
22	Tu.	20	15. 19	345. 42	351. 18	0. 33 S	1. 48 N
23	W.	21	16. 2	356. 57	2. 41	4. 8 N	6. 28
24	Th.	22	16. 48	8. 32	14. 30	8. 45	10. 57
25	F.	23	17. 36	20. 39	26. 59	13. 4	15. 4
26	Sa.	24	18. 28	33. 31	40. 16	16. 54	18. 33
27	*Su.*	25	19. 24	47. 16	54. 29	19. 59	21. 10
28	M.	26	20. 23	61. 55	69. 33	22. 2	22. 34
29	Tu.	27	21. 25	77. 21	85. 15	22. 44	22. 31
30	W.	28	22. 27	93. 12	101. 9	21. 55	20. 55
31	Th.	29	23. 29	109. 4	116. 53	19. 33	17. 50

JULY 1788.

Days of the Month.	Days of the Week.	Semid^r. ☽ at Noon.	Semid^r. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	Tu.	16. 26	16. 31	60. 17	60. 38	4751	4725
2	W.	16. 36	16. 40	60. 56	61. 10	4704	4687
3	Th.	16. 43	16. 44	61. 20	61. 24	4676	4671
4	F.	16. 44	16. 43	61. 24	61. 19	4671	4677
5	Sa.	16. 40	16. 36	61. 10	60. 56	4687	4704
6	Su.	16. 32	16. 26	60. 39	60. 18	4724	4750
7	M.	16. 20	16. 13	59. 56	59. 32	4776	4805
8	Tu.	16. 6	15. 59	59. 6	58. 40	4837	4869
9	W.	15. 52	15. 45	58. 13	57. 47	4902	4934
10	Th.	15. 38	15. 31	57. 22	56. 58	4966	4996
11	F.	15. 25	15. 19	56. 35	56. 14	5026	5053
12	Sa.	15. 14	15. 9	55. 54	55. 36	5079	5102
13	Su.	15. 5	15. 1	55. 20	55. 6	5123	5141
14	M.	14. 57	14. 54	54. 53	54. 42	5158	5173
15	Tu.	14. 52	14. 49	54. 32	54. 24	5186	5197
16	W.	14. 48	14. 46	54. 18	54. 13	5205	5211
17	Th.	14. 45	14. 45	54. 9	54. 6	5217	5221
18	F.	14. 45	14. 45	54. 6	54. 6	5221	5221
19	Sa.	14. 45	14. 46	54. 8	54. 11	5218	5214
20	Su.	14. 47	14. 49	54. 16	54. 22	5207	5199
21	M.	14. 51	14. 54	54. 30	54. 39	5189	5177
22	Tu.	14. 57	15. 0	54. 50	55. 2	5162	5146
23	W.	15. 4	15. 8	55. 17	55. 34	5127	5104
24	Th.	15. 13	15. 19	55. 52	56. 13	5081	5054
25	F.	15. 25	15. 32	56. 35	56. 59	5026	4995
26	Sa.	15. 39	15. 46	57. 24	57. 50	4964	4931
27	Su.	15. 53	16. 1	58. 17	58. 45	4897	4863
28	M.	16. 8	16. 15	59. 12	59. 38	4830	4798
29	Tu.	16. 22	16. 28	60. 3	60. 26	4768	4740
30	W.	16. 33	16. 38	60. 45	61. 3	4716	4696
31	Th.	16. 42	16. 44	61. 16	61. 25	4680	4670

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
4						78. 27. 11	76. 33. 35	74. 40. 9	72. 46. 54
5		70. 53. 49	69. 0. 57	67. 8. 19	65. 15. 55	63. 23. 45	61. 31. 52	59. 40. 17	57. 48. 59
6	Spica ♍	55. 58. 0	54. 7. 20	52. 17. 0	50. 27. 2	48. 37. 24	46. 48. 8	44. 59. 15	43. 10. 45
7		41. 22. 38	39. 34. 55	37. 47. 37	36. 0. 43	34. 14. 14	32. 28. 10	30. 42. 32	28. 57. 22
8		27. 12. 37							
8		72. 42. 24	70. 57. 53	69. 13. 47	67. 30. 7	65. 46. 51	64. 4. 0	62. 21. 32	60. 39. 28
9	Antares.	58. 57. 48	57. 16. 32	55. 35. 39	53. 55. 10	52. 15. 4	50. 35. 21	48. 56. 1	47. 17. 4
10		45. 38. 29	44. 0. 17	42. 22. 27	40. 44. 59	39. 7. 52	37. 31. 6	35. 54. 42	34. 18. 39
11		32. 42. 56							
11		87. 10. 39	85. 44. 11	84. 18. 1	82. 52. 9	81. 26. 36	80. 1. 22	78. 36. 27	77. 11. 52
12	α Aquilæ	75. 47. 38	74. 23. 45	73. 0. 13	71. 37. 3	70. 14. 16	68. 51. 52	67. 29. 51	66. 8. 15
13		64. 47. 4	63. 26. 20	62. 6. 4	60. 46. 16	59. 26. 56			
13	Fomal-haut.					85. 37. 7	84. 15. 1	82. 53. 7	81. 31. 25
14		80. 9. 55	78. 48. 38	77. 27. 35	76. 6. 45	74. 46. 8	73. 25. 45	72. 5. 37	70. 45. 45
15		69. 26. 9	68. 6. 50	66. 47. 50	65. 29. 9	64. 10. 47			
15						81. 26. 47	79. 59. 59	78. 33. 17	77. 6. 42
16	α Pegaſi.	75. 40. 13	74. 13. 50	72. 47. 34	71. 21. 24	69. 55. 21	68. 29. 24	67. 3. 33	65. 37. 49
17		64. 12. 11	62. 46. 40	61. 21. 17	59. 56. 1	58. 30. 53	57. 5. 53	55. 41. 1	54. 16. 19

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S	D. M. S.	D. M. S	D. M. S.	D. M. S.
18	α Pegasi.	52. 51. 47	51. 27. 25	50. 3. 15	48. 39. 18	47. 15. 33	45. 52. 2	44. 28. 47	43. 5. 47
19		41. 43. 3							
19	α Arietis.	83. 23. 15	81. 54. 59	80. 26. 41	78. 58. 21	77. 30. 0	76. 1. 36	74. 33. 11	73. 4. 44
20		71. 36. 14	70. 7. 42	68. 39. 7	67. 10. 30	65. 41. 49	64. 13. 4	62. 44. 15	61. 15. 22
21		59. 46. 26	58. 17. 25	56. 48. 19	55. 19. 9	53. 49. 55	52. 20. 35	50. 51. 10	49. 21. 41
22		47. 52. 6	46. 22. 26	44. 52. 41	43. 22. 50	41. 52. 54	40. 22. 53	38. 52. 46	37. 22. 34
23		35. 52. 16							
23	Aldebaran.	68. 41. 24	67. 9. 53	65. 38. 10	64. 6. 16	62. 34. 10	61. 1. 52	59. 29. 21	57. 56. 37
24		56. 23. 40	54. 50. 29	53. 17. 5	51. 43. 27	50. 9. 34	48. 35. 26	47. 1. 4	45. 26. 28
25		43. 51. 38	42. 16. 32	40. 41. 12	39. 5. 40	37. 29. 53	35. 53. 53	34. 17. 40	32. 41. 14
26		31. 4. 35							
23	The Sun.	122. 9. 54	120. 45. 8	119. 20. 9	117. 54. 57	116. 29. 32	115. 3. 53	113. 38. 0	112. 11. 52
24		110. 45. 30	109. 18. 53	107. 51. 59	106. 24. 48	104. 57. 20	103. 29. 36	102. 1. 34	100. 33. 13
25		99. 4. 34	97. 35. 37	96. 6. 20	94. 36. 43	93. 6. 47	91. 36. 30	90. 5. 51	88. 34. 51
26		87. 3. 30	85. 31. 47	83. 59. 41	82. 27. 13	80. 54. 22	79. 21. 8	77. 47. 31	76. 13. 30
27		74. 39. 5	73. 4. 16	71. 29. 2	69. 53. 24	68. 17. 22	66. 40. 55	65. 4. 3	63. 26. 46
28		61. 49. 5	60. 10. 59	58. 32. 30	56. 53. 37	55. 14. 20	53. [illegible]4. 39	51. 54. 35	50. 14. 9
29		48. 33. 20	46. 52. 8	45. 10. 35	43. 28. 42	41. 46. 29	40. 3. 58	38. 21. 9	

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon. D. M. S.	3 Hours. D. M. S.	6 Hours. D. M. S.	9 Hours. D. M. S.	12 Hours. D. M. S.	15 Hours. D. M. S.	18 Hours. D. M. S.	21 Hours. D. M. S.
1	α Arietis.	36. 4.38	37.52.47	39.41.21	41.30.21	43.19.46	45. 9.36	46.59.52	48.50.33
2		50.41.40							
6	The Sun.	40.11.33	41.55. 0	43.38. 8	45.20.55	47. 3.23	48.45.31	50.27.18	52. 8.43
7		53.49.45	55.30.23	57.10.38	58.50.30	60.29.59	62. 9. 4	63.47.45	65.26. 2
8		67. 3.55	68.41.24	70.18.28	71.55. 9	73.31.26	75. 7.18	76.42.47	78.17.52
9		79.52.33	81.26.51	83. 0.46	84.34.18	86. 7.28	87.40.16	89.12.42	90.44.46
10		92.16.29	93.47.51	95.18.52	96.49.33	98.19.53	99.49.54	101.19.36	102.49. 0
11		104.18. 4	105.46.49	107.15.17	108.43.28	110.11.22	111.39. 0	113. 6.23	114.33.30
12		116. 0.22	117.26.58	118.53.19	120.19.26				
9	Regulus.					47.43. 6	49.22.22	51. 1.19	52.39.56
10		54.18.13	55.56.10	57.33.48	59.11. 8	60.48. 9	62.24.52	64. 1.18	65.37.26
11		67.13.17	68.48.50	70.24. 6	71.59. 5	73.33.47			
11	Spica ♍					19.30.57	21. 5.17	22.39.24	24.13.19
12		25.47. 2	27.20.33	28.53.53	30.27. 1	31.59.58	33.32.43	35. 5.16	36.37.38
13		38. 9.50	39.41.51	41.13.41	42.45.21	44.16.52	45.48.14	47.19.27	48.50.31
14		50.21.26	51.52.13	53.22.52	54.53.24	56.23.48	57.54. 5	59.24.16	60.54.20
15		62.24.18	63.54.10	65.23.57	66.53.38	68.23.14			
15	Antares.					23. 5.27	24.33.59	26. 2.32	27.31. 6
16		28.59.40	30.28.15	31.56.49	33.25.24	34.53.58	36.22.32	37.51. 6	39.19.39

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
17	Antares.	40. 48. 12	42. 16. 44	43. 45. 16	45.13.47	46. 42. 18	48. 10. 48	49. 39. 18	51. 7.48
18		52. 36. 18	54. 4. 48	55. 33. 19	57. 1.50	58. 30. 22	59. 58. 55	61. 27. 29	62.56. 5
19		64. 24. 42	65. 53. 21	67. 22. 1	68.50.44	70. 19. 29	71. 48. 17	73. 17. 7	74.46. 0
20		76. 14. 56	77. 43. 55	79. 12. 58	80.42. 5	82. 11. 17	83. 40. 34	85. 9. 55	86.39.21
21		88. 8. 53	89. 38. 29	91. 8. 12	92.38. 1	94. 7. 56	95. 37. 59	97. 8. 10	98.38.30
22		100. 8. 58							
22	α Aquilæ.	51. 10. 37	52. 26. 18	53. 42. 37	54.59.35	56. 17. 9	57. 35. 19	58. 54. 3	60.13.19
23		61. 33. 8	62. 53. 25	64. 14. 11	65.35.25	66. 57. 6	68. 19. 13	69. 41. 46	71. 4.44
24		72. 28. 6	73. 51. 52	75. 16. 1	76.40.33	78. 5. 28	79. 30. 45	80. 56. 24	82.22.24
25		83. 48. 45							
25	α Pegasi.	36. 1. 42	37. 29. 29	38. 58. 6	40.27.32	41. 57. 45	43. 28. 42	45. 0. 23	46.32.45
26		48. 5. 46	49. 39. 24	51. 13. 39	52.48.30	54. 23. 55	55. 59. 55	57. 36. 27	59.13.32
27		60. 51. 9	62. 29. 19	64. 8. 0	65.47.10	67. 26. 49			
27	α Arietis.					23. 49. 46	25. 29. 48	27. 10. 36	28.52.10
28		30. 34. 27	32. 17. 27	34. 1. 5	35.45.22	37. 30. 14	39. 15. 39	41. 1. 36	42.48. 4
29		44. 35. 3	46. 22. 30	48. 10. 24	49.58.45	51. 47. 32	53. 36. 44	55. 26. 19	57.16.17
30		59. 6. 38	60. 57. 19	62. 48. 20	64.39.40	66. 31. 18	68. 23. 13	70. 15. 23	72. 7.47
31		74. 0. 26							

The Satellites of JUPITER will not be viſible this Month, JUPITER being too near the SUN.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	F.	Lammas-Day.
2	Sa.	
3	*Su.*	*11th Sunday after Trinity.*
4	M.	
5	Tu.	
6	W.	Transfig. of our Lord.
7	Th.	Name of Jeſus.
8	F.	
9	Sa.	
10	*Su.*	[St. Lawrence. *12th Sunday after Trinity.*
11	M.	*Prs. of Brunſwick born.*
12	Tu.	*Pr. of Wales born.*
13	W.	
14	Th.	
15	F.	
16	Sa.	*Pr. Frederick born.*
17	*Su.*	*13th Sunday after Trinity.*
18	M.	
19	Tu.	
20	W.	
21	Th.	*Pr. W. Henry born.*
22	F.	
23	Sa.	
24	*Su.*	*14th Sunday after Trinity.*
25	M.	[*St. Bartholomew.*
26	Tu.	
27	W.	
28	Th.	St. Auguſtine.
29	F.	Beheading of St. John
30	Sa.	[Baptiſt.
31	*Su.*	*15th Sunday after Trinity.*

Phaſes of the Moon.	D.	H.	M.
New Moon —	1.	11.	6
Firſt Quarter —	8.	6.	36
Full Moon —	16.	9.	57
Laſt Quarter —	24.	3.	39
New Moon —	30.	18.	34

Other Phenomena. D.H.M.	
1.	♂ β ♍ d.L. 2′.
4. 5. 0	☾ e ♌
8. 9. 3	☾ 1 ad ι ♎
9. 7.15	☾ δ ♏
10.22.14	☾ β Ophiuchi.
12.	☿ Stationary.
22.31	☾ π ♐
14.	♂ η ♍ d.L. 52′.
10.39	☾ β ♑
22. 1.14	☉ enters ♍
23. 2.16	☾ δ ♈
25. 0.25	☾ ι ♉
26. 4.49	☾ η ♊
7.56	☾ μ ♊
27. 0. 3	☾ ζ ♊
28.22.24	☾ 2 ad α ♋
29.	♀ Stationary.

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Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Afc. in Time.	Sun's Declin. North.	Equat. of Time. Add.	Diff.
		S. D. M. S.	H. M. S.	D.M.S.	M. S.	S.
1	F.	4. 9.46.12	8. 48.52,3	17.49.21	5. 51,4	4,1
2	Sa.	4. 10.43.42	8. 52.44,9	17.33.49	5. 47,3	4,7
3	*Su.*	4. 11.41.12	8. 56.36,6	17.18. 1	5. 42,6	5,3
4	M.	4. 12.38.43	9. 0.27,8	17. 1.55	5. 37,3	5,9
5	Tu.	4. 13.36.16	9. 4.18,5	16.45.33	5. 31,4	6,5
6	W.	4. 14.33.50	9. 8. 8,5	16.28.55	5. 24,9	7,2
7	Th.	4. 15.31.24	9. 11.57,9	16.12. 0	5. 17,7	7,7
8	F.	4. 16.28.59	9. 15.46,7	15.54.50	5. 10,0	8,3
9	Sa.	4. 17.26.35	9. 19.34,9	15.37.25	5. 1,7	8,9
10	*Su.*	4. 18.24.12	9. 23.22,5	15.19.45	4. 52,8	9,5
11	M.	4. 19.21.49	9. 27. 9,4	15. 1.50	4. 43,3	10,1
12	Tu.	4. 20.19.27	9. 30.55,8	14.43.41	4. 33,2	10,8
13	W.	4. 21.17. 6	9. 34.41,7	14.25.18	4. 22,4	11,3
14	Th.	4. 22.14.47	9. 38.27,0	14. 6.41	4. 11,1	11,8
15	F.	4. 23.12.29	9. 42.11,8	13.47.51	3. 59,3	12,3
16	Sa.	4. 24.10.12	9. 45.56,0	13.28.48	3. 47,0	12,8
17	*Su.*	4. 25. 7.56	9. 49.39,7	13. 9.31	3. 34,2	13,3
18	M.	4. 26. 5.42	9. 53.22,9	12.50. 2	3. 20,9	13,7
19	Tu.	4. 27. 3.29	9. 57. 5,6	12.30.21	3. 7,2	14,2
20	W.	4. 28. 1.18	10. 0.47,9	12.10.28	2. 53,0	14,6
21	Th.	4. 28.59. 9	10. 4.29,8	11.50.23	2. 38,4	15,1
22	F.	4. 29.57. 1	10. 8.11,3	11.30. 7	2. 23,3	15,5
23	Sa.	5. 0.54.55	10. 11.52,3	11. 9.40	2. 7,8	15,9
24	*Su.*	5. 1.52.51	10. 15.32,9	10.49. 2	1. 51,9	16,4
25	M.	5. 2.50.49	10. 19.13,0	10.28.13	1. 35,5	16,7
26	Tu.	5. 3.48.49	10. 22.52,8	10. 7.15	1. 18,8	17,1
27	W.	5. 4.46.51	10. 26.32,3	9.46. 7	1. 1,7	17,4
28	Th.	5. 5.44.55	10. 30.11,4	9.24.49	0. 44,3	17,7
29	F.	5. 6.43. 1	10. 33.50,2	9. 3.22	0. 26,6	18,0
30	Sa.	5. 7.41. 9	10. 37.28,7	8.41.46	0. 8,6	18,3
31	*Su.*	5. 8.39.18	10. 41. 6,9	8.20. 2	Sub. 9,7	

Days of the Month.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	15. 49,1	1. 6,5	2. 23,7	0. 006239	8. 14. 2
7	15. 50,0	1. 5,9	2. 24,0	0. 005823	8. 13. 43
13	15. 51,0	1. 5,5	2. 24,3	0. 005335	8. 13. 24
19	15. 52,2	1. 5,0	2. 24,6	0. 004810	8. 13. 5
25	15. 53,4	1. 4,7	2. 25,0	0. 004253	8. 12. 46

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite. Immerſions.		II. Satellite. Immerſions.		III. Satellite.	
Days	H. M. S.	Days	H. M. S.	Days	H. M. S.
1	20. 25. 53	1	0. 26. 9	4	17. 31. 55 I
3	14. 54. 39	4	13. 43. 15	4	20. 44. 12 E
5	9. 23. 25	8	3. 0. 37	11	21. 32. 9 I
7	3. 52. 12	11	16. 18. 3	12	0. 45. 8 E
8	22. 21. 1	15	5. 35. 36	19	1. 32. 26 I
10	16. 49. 49	18	18. 53. 16	19	4. 46. 21 E
12	11. 18. 42	22	8. 11. 1	26	5. 33. 8 I
14	5. 47. 34	25	21. 28. 52	26	8. 47. 54 E
16	0. 16. 28	29	10. 46. 47		
17	18. 45. 24			IV. Satellite.	
19	13. 14. 20				
21	7. 43. 17			16	19. 47. 30 I
23	2. 12. 15			16	23. 7. 33 E
24	20. 41. 15				
*26	15. 10. 16				
28	9. 39. 18				
30	4. 8. 20				
31	22. 37. 22				

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Days.	Heliocentric Longitude. S. D. M.	Heliocentric Latitude. D. M.	Geocentric Longitude. S. D. M.	Geocentric Latitude. D. M.	Declination. D. M.	Paſſage over Merid. H. M.
Inf. ☌ 2^{d}. 7$\frac{1}{4}^{h}$. MERCURY. Greateſt El. 19^{d}.						
1	10. 6. 34	6. 55 S	4. 12. 2	4. 54 S	12. 30 N	0. 3
4	10. 17. 1	7. 0	4. 9. 44	4. 41	13. 19	23. 37
7	10. 28. 17	6. 50	4. 7. 46	4. 12	14. 17	23. 19
10	11. 10. 32	6. 22	4. 6. 29	3. 30	15. 17	23. 4
13	11. 23. 56	5. 31	4. 6. 9	2. 41	16. 9	22. 54
16	0. 8. 36	4. 15	4. 6. 54	1. 48	16. 49	22. 48
19	0. 24. 38	2. 33	4. 8. 47	0. 57	17. 10	22. 47
22	1. 11. 58	0. 29 S	4. 11. 44	0. 10 S	17. 8	22. 50
25	2. 0. 20	1. 45 N	4. 15. 38	0. 31 N	16. 40	22. 56
28	2. 19. 14	3. 52	4. 20. 18	1. 4	15. 45	23. 5
31	3. 8. 0	5. 32	4. 25. 31	1. 27	14. 24	23. 16
VENUS. Inf. ☌ 7^{d}. 13$\frac{1}{4}^{h}$.						
1	10. 5. 42	2. 38 S	4. 19. 54	6. 30 S	8. 42 N	0. 32
7	10. 15. 11	2. 57	4. 16. 22	7. 26	8. 51	23. 49
13	10. 24. 41	3. 11	4. 12. 44	7. 56	9. 23	23. 11
19	11. 4. 11	3. 20	4. 9. 48	7. 56	10. 11	22. 38
25	11. 13. 41	3. 23	4. 8. 6	7. 30	11. 1	22. 10
MARS.						
1	6. 19. 30	0. 54 N	5. 23. 39	0. 40 N	3. 8 N	2. 49
7	6. 22. 18	0. 49	5. 27. 24	0. 35	1. 34 N	2. 39
13	6. 25. 8	0. 43	6. 1. 12	0. 31	0. 0	2. 30
19	6. 27. 59	0. 38	6. 5. 1	0. 27	1. 35 S	2. 22
25	7. 0. 51	0. 33	6. 8. 53	0. 23	3. 10	2. 14
JUPITER.						
1	3. 11. 11	0. 3 N	3. 15. 45	0. 3 N	22. 35 N	22. 17
7	3. 11. 41	0. 4	3. 17. 2	0. 3	22. 26	21. 59
13	3. 12. 11	0. 5	3. 18. 17	0. 4	22. 17	21. 42
19	3. 12. 41	0. 5	3. 19. 30	0. 5	22. 7	21. 25
25	3. 13. 11	0. 6	3. 20. 41	0. 5	21. 58	21. 8
SATURN. ☍ 29^{d}. 22^{h}.						
1	11. 6. 40	1. 46 S	11. 9. 39	1. 57 S	9. 46 S	13. 56
7	11. 6. 52	1. 46	11. 9. 16	1. 58	9. 56	13. 32
13	11. 7. 4	1. 47	11. 8. 52	1. 58	10. 5	13. 8
19	11. 7. 15	1. 47	11. 8. 26	1. 59	10. 15	12. 44
25	11. 7. 27	1. 47	11. 7. 59	2. 0	10. 26	12. 20

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D.M.S.	D. M. S.
1	F.	4. 3. 9. 7	4. 10.47.13	3.45.57 S	4. 11. 18 S
2	Sa.	4. 18.24.51	4. 26. 0.38	4.32.14	4. 48. 13
3	*Su.*	5. 3.33.11	5. 11. 1.21	4.59. 1	5. 4. 36
4	M.	5. 18.24. 4	5. 25.40.29	5. 5. 1	5. 0. 28
5	Tu.	6. 2.50. 2	6. 9.52.22	4.51.15	4. 37. 45
6	W.	6. 16.47.18	6. 23.34.51	4.20.22	3. 59. 36
7	Th.	7. 0.15.16	7. 6.48.48	3.35.52	3. 9. 40
8	F.	7. 13.15.59	7. 19.37.16	2.41.26	2. 11. 37
9	Sa.	7. 25.53.15	8. 2. 4.32	1.40.35	1. 8. 47
10	*Su.*	8. 8.11.44	8. 13.15.25	0.36.32 S	0. 4. 11 S
11	M.	8. 20.16.17	8. 26.14.49	0.27.55 N	0. 59. 30 N
12	Tu.	9. 2.11.39	9. 8. 7.14	1.30.13	1. 59. 50
13	W.	9. 14. 2. 7	9. 19.56.38	2.28. 1	2. 54. 33
14	Th.	9. 25.51.15	10. 1.46.13	3.19. 9	3. 41. 36
15	F.	10. 7.41.55	10. 13.38.30	4. 1.40	4. 19. 7
16	Sa.	10. 19.36.18	10. 25.35.21	4.33.46	4. 45. 26
17	*Su.*	11. 1.35.57	11. 7.38. 8	4.53.58	4. 59. 14
18	M.	11. 13.42. 6	11. 19.48. 0	5. 1.10	4. 59. 39
19	Tu.	11. 25.55.55	0. 2. 6. 5	4.54.41	4. 46. 14
20	W.	0. 8.18.41	0. 14.33.52	4.34.20	4. 19. 5
21	Th.	0. 20.51.59	0. 27.13.13	4. 0.32	3. 38. 51
22	F.	1. 3.37.56	1. 10. 6.24	3.14.11	2. 46. 46
23	Sa.	1. 16.39. 0	1. 23.16. 1	2.16.51	1. 44. 46
24	*Su.*	1. 29.57.48	2. 6.44.39	1.10.49 N	0. 35. 28 N
25	M.	2. 13.36.47	2. 20.34.26	0. 0.53 S	0. 37. 41 S
26	Tu.	2. 27.37.41	3. 4.46.28	1.14.22	1. 50. 23
27	W.	3. 12. 0.39	3. 19.19.54	2.24.59	2. 57. 36
28	Th.	3. 26.43.40	4. 4.11.15	3.27.32	3. 54. 8
29	F.	4. 11.41.42	4. 19.14. 0	4.16.51	4. 35. 11
30	Sa.	4. 26.46.53	5. 4.19. 4	4.48.43	4. 57. 11
31	*Su.*	5. 11.49.17	5. 19.16.14	5. 0.29	4. 58. 42

AUGUST 1788. VI.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſs-age over Merid. H. M.	☽'s Right Aſcenſ. at Noon. D. M.	☽'s Right Aſcenſ. at Midn. D. M.	☽'s Declination at Noon. D. M.	☽'s Declination at Midn. D. M.
1	F.	1	☌	124. 33	132. 4	15. 49 N	13. 31 N
2	Sa.	2	0. 26	139. 25	146.37	11. 0	8. 20
3	*Su.*	3	1. 21	153. 40	160.34	5. 34 N	2. 44 N
4	M.	4	2. 14	167. 21	174. 2	0. 5 S	2. 52 S
5	Tu.	5	3. 5	180. 40	187.14	5. 35	8. 10
6	W.	6	3. 55	193. 46	200.18	10. 37	12. 53
7	Th.	7	4. 45	206. 51	213.23	14. 56	16. 47
8	F.	8	5. 35	219. 57	226.32	18. 24	19. 46
9	Sa.	9	6. 25	233. 8	239.44	20. 52	21. 43
10	*Su.*	10	7. 16	246. 20	252.55	22. 18	22. 36
11	M.	11	8. 7	259. 27	265.56	22. 38	22. 25
12	Tu.	12	8. 56	272. 22	278.43	21. 56	21. 13
13	W.	13	9. 44	284. 58	291. 8	20. 16	19. 6
14	Th.	14	10. 30	297. 12	303.10	17. 44	16. 11
15	F.	15	11. 14	309. 3	314.51	14. 28	12. 36
16	Sa.	16	11. 57	320. 34	326.14	10. 37	8. 31
17	*Su.*	17	12. 39	331. 52	337.28	6. 20	4. 5 S
18	M.	18	13. 22	343. 4	348.40	1. 47 S	0. 33 N
19	Tu.	19	14. 5	354. 19	0. 1	2. 53 N	5. 12
20	W.	20	14. 50	5. 49	11.43	7. 30	9. 44
21	Th.	21	15. 37	17. 44	23.54	11. 52	13. 53
22	F.	22	16. 27	30. 15	36.46	15. 47	17. 30
23	Sa.	23	17. 20	43. 29	50.24	19. 1	20. 18
24	*Su.*	24	18. 16	57. 30	64.47	21. 19	22. 2
25	M.	25	19. 15	72. 14	79.47	22. 26	22. 30
26	Tu.	26	20. 15	87. 26	95. 8	22. 13	21. 33
27	W.	27	21. 15	102. 50	110.29	20. 31	19. 8
28	Th.	28	22. 14	118. 4	125.34	17. 26	15. 26
29	F.	29	23. 11	132. 57	140.12	13. 11	10. 43
30	Sa.	1	☌	147. 21	154.23	8. 5	5. 19 N
31	*Su.*	2	0. 5	161. 20	168.11	2. 30	0. 20 S

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon. M. S.	Semid^{r}. ☽ at Midnight. M. S.	Hor. Par. ☽ at Noon. M. S.	Hor. Par. ☽ at Midnight. M. S.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
1	F.	16. 45	16. 44	61. 29	61. 28	4665	4666
2	Sa.	16. 43	16. 40	61. 21	61. 10	4675	4687
3	*Su.*	16. 36	16. 31	60. 55	60. 37	4705	4727
4	M.	16. 25	16. 18	60. 14	59. 48	4754	4786
5	Tu.	16. 11	16. 3	59. 22	58. 54	4817	4852
6	W.	15. 55	15. 47	58. 26	57. 57	4886	4922
7	Th.	15. 40	15. 32	57. 29	57. 2	4957	4991
8	F.	15. 25	15. 19	56. 36	56. 12	5025	5055
9	Sa.	15. 13	15. 8	55. 51	55. 31	5082	5108
10	*Su.*	15. 3	14. 59	55. 14	54. 58	5130	5152
11	M.	14. 55	14. 52	54. 45	54. 33	5169	5185
12	Tu.	14. 49	14. 47	54. 24	54. 17	5197	5206
13	W.	14. 46	14. 45	54. 12	54. 9	5213	5217
14	Th.	14. 45	14. 45	54. 8	54. 7	5218	5219
15	F.	14. 45	14. 46	54. 9	54. 11	5217	5214
16	Sa.	14. 47	14. 49	54. 16	54. 21	5207	5201
17	*Su.*	14. 51	14. 53	54. 28	54. 36	5191	5181
18	M.	14. 56	14. 58	54. 45	54. 55	5169	5155
19	Tu.	15. 1	15. 5	55. 7	55. 20	5140	5123
20	W.	15. 9	15. 13	55. 34	55. 49	5104	5085
21	Th.	15. 17	15. 22	56. 6	56. 23	5063	5041
22	F.	15. 27	15. 32	56. 42	57. 1	5017	4992
23	Sa.	15. 38	15. 44	57. 22	57. 44	4966	4938
24	*Su.*	15. 50	15. 56	58. 6	58. 29	4911	4882
25	M.	16. 2	16. 9	58. 52	59. 15	4854	4826
26	Tu.	16. 15	16. 20	59. 37	59. 58	4799	4773
27	W.	16. 25	16. 30	60. 16	60. 33	4752	4732
28	Th.	16. 34	16. 37	60. 46	60. 57	4716	4703
29	F.	16. 38	16. 39	61. 3	61. 5	4696	4693
30	Sa.	16. 38	16. 36	61. 3	60. 56	4696	4704
31	*Su.*	16. 33	16. 29	60. 45	60. 31	4717	4734

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
3	Spica ♍	47. 20. 8	45. 28. 12	43. 36. 35	41. 45. 17	39. 54. 19	38. 3. 43	36. 13. 29	34. 23. 39
4		32. 34. 12	30. 45. 10	28. 56. 34	27. 8. 24	25. 20. 42	23. 33. 28	21. 46. 44	20. 0. 30
5		18. 14. 46							
5	Antares.	63. 44. 45	61. 59. 6	60. 13. 55	58. 29. 11	56. 44. 54	55. 1. 4	53. 17. 41	51. 34. 46
6		49. 52. 18	48. 10. 17	46. 28. 43	44. 47. 37	43. 6. 58	41. 26. 46	39. 47. 1	38. 7. 44
7		36. 28. 54	34. 50. 31	33. 12. 35	31. 35. 6	29. 58. 5			
7	α Aquilæ.					84. 35. 1	83. 7. 18	81. 39. 59	80. 13. 5
8		78. 46. 35	77. 20. 30	75. 54. 52	74. 29. 40	73. 4. 53	71. 40. 33	70. 16. 40	68. 53. 16
9		67. 30. 20	66. 7. 53	64. 45. 56	63. 24. 29	62. 3. 33			
9	Fomal-haut.					88. 28. 58	87. 5. 54	85. 43. 4	84. 20. 28
10		82. 58. 7	81. 36. 1	80. 14. 10	78. 52. 35	77. 31. 15	76. 10. 11	74. 49. 24	73. 28. 54
11		72. 8. 41	70. 48. 45	69. 29. 8	68. 9. 49	66. 50. 49	65. 32. 8	64. 13. 46	62. 55. 46
12		61. 38. 9							
12	α Pegaſi.	78. 31. 26	77. 5. 5	75. 38. 50	74. 12. 42	72. 46. 40	71. 20. 44	69. 54. 55	68. 29. 12
13		67. 3. 36	65. 38. 6	64. 12. 43	62. 47. 26	61. 22. 16	59. 57. 12	58. 32. 15	57. 7. 25
14		55. 42. 43	54. 18. 9	52. 53. 45	51. 29. 31	50. 5. 26	48. 41. 31	47. 17. 49	45. 54. 18
15		44. 31. 0							

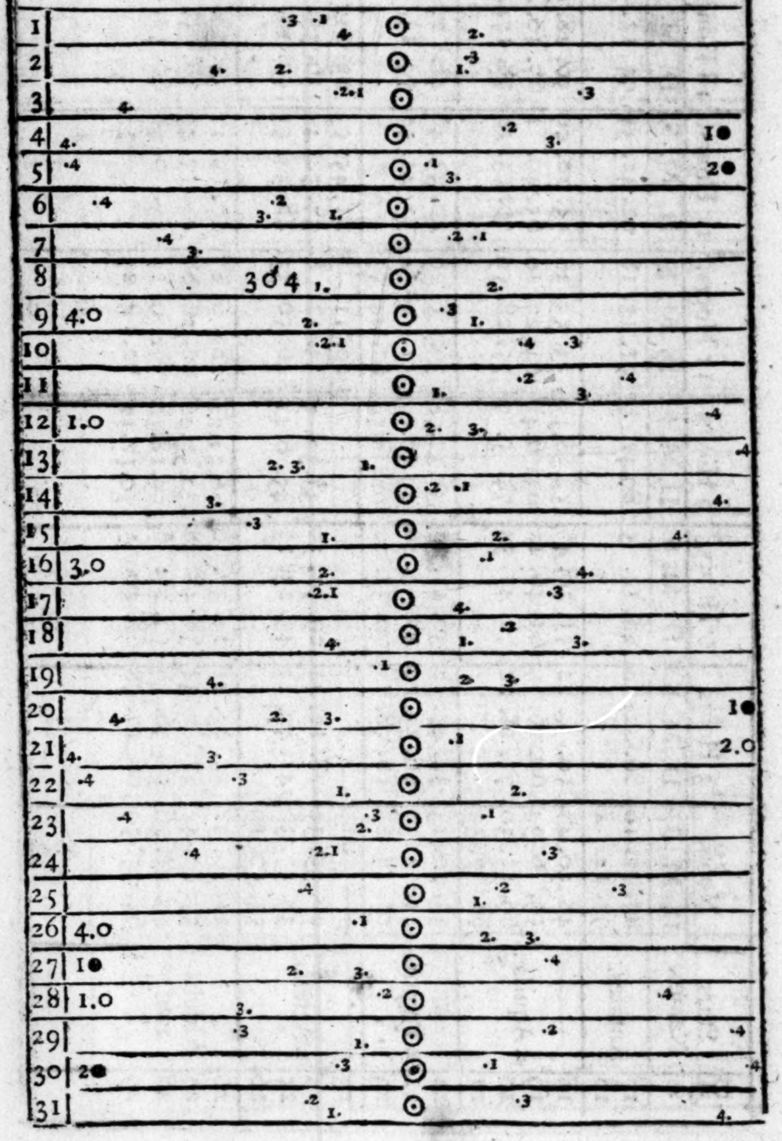
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
15	α Arietis.	86. 22. 15	84. 53. 56	83. 25. 34	81. 57. 8	80. 28. 39	79. 0. 7	77. 31. 32	76. 2. 54
16		74. 34. 13	73. 5. 28	71. 36. 40	70. 7. 48	68. 38. 53	67. 9. 54	65. 40. 50	64. 11. 42
17		62. 42. 30	61. 13. 13	59. 43. 52	58. 14. 27	56. 44. 58	55. 15. 24	53. 45. 45	52. 16. 2
18		50. 46. 15	49. 16. 24	47. 46. 29	46. 16. 29	44. 46. 25			
18	Aldebaran.					77. 38. 20	76. 7. 26	74. 36. 25	73. 5. 16
19		71. 33. 58	70. 2. 32	68. 30. 58	66. 59. 15	65. 27. 24	63. 55. 24	62. 23. 16	60. 50. 58
20		59. 18. 32	57. 45. 56	56. 13. 11	54. 40. 16	53. 7. 11	51. 33. 56	50. 0. 32	48. 26. 58
21		46. 53. 14	45. 19. 20	43. 45. 17	42. 11. 5	40. 36. 43	39. . 2, 12	37. 27. 32	35. 52. 43
22		34. 17. 45							
23	Pollux.	76. 24. 8	74. 48. 46	73. 13. 11	71. 37. 21	70. 1. 16	68. 24. 57	66. 48. 23	65. 11. 35
23		63. 34. 33	61. 57. 17	60. 19. 47	58. 42. 3	57. 4. 4	55. 25. 51	53. 47. 25	52. 8. 45
24		50. 29. 51							
21	The Sun.					122. 10. 28	120. 42. 19	119. 13. 55	117. 45. 16
22		116. 16. 22	114. 47. 12	113. 17. 46	111. 48. 3	110. 18. 4	108. 47. 48	107. 17. 14	105. 46. 23
23		104. 15. 14	102. 43. 47	101. 12. 2	99. 39. 59	98. 7. 38	96. 34. 58	95. 1. 59	93. 28. 40
24		91. 55. 2	90. 21. 4	88. 46. 46	87. 12. 9	85. 37. 12	84. 1. 55	82. 26. 18	80. 50. 20
25		79. 14. 2	77. 37. 24	76. 0. 25	74. 23. 6	72. 45. 27	71. 7. 27	69. 29. 8	67. 50. 29
26		66. 11. 30	64. 32. 11	62. 52. 33	61. 12. 37	59. 32. 22	57. 51. 50	56. 11. 0	54. 29. 54
27		52. 48. 31	51. 6. 52	49. 24. 57	47. 42. 48	46. 0. 26	44. 17. 51	42. 35. 4	40. 52. 6
28		39. 8, 58							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M S.	D. M. S.
4	The Sun.			39. 26. 24	41. 7. 1	42. 47. 16	44. 27. 8	46. 6. 36	47.45.41
5		49. 24. 22	51. 2. 38	52. 40. 29	54.17.55	55. 54. 56	57. 31. 30	59. 7. 39	60.43.22
6		62. 18. 39	63. 53. 30	65. 27. 56	67. 1.56	68. 35. 31	70. 8. 41	71. 41. 26	73.13.46
7		74. 45. 42	76. 17. 14	77. 48. 22	79.19. 7	80. 49. 28	82. 19. 27	83. 49. 4	85.18.19
8		86. 47. 13	88. 15. 46	89. 43. 58	91.11.50	92. 39. 23	94. 6. 36	95. 33. 31	97. 0. 8
9		98. 26. 27	99. 52. 29	101. 18. 16	102.43.45	104. 8. 58	105. 33. 57	106. 58. 41	108.23.11
10		109. 47. 27	111. 11. 30	112. 35. 20	113.58.58	115. 22. 24	116. 45. 39	118. 8. 44	119.31.38
11		120. 54. 23							
8	Spica ♍	22. 21. 38	23. 57. 14	25. 32. 33	27. 7.34	28. 42. 18	30. 16. 45	31. 50. 55	33.24.49
9		34. 58. 27	36. 31. 48	38. 4. 54	39.37.45	41. 10. 20	42. 42. 41	44. 14. 48	45.46.42
10		47. 18. 23	48. 49. 51	50. 21. 7	51.52.12	53. 23. 6	54. 53. 49	56. 24. 22	57.54.45
11		59. 25. 0	60. 55. 6	62. 25. 4	63.54.54	65. 24. 37			
11	Antares.					20. 11. 2	21. 39. 12	23. 7. 24	24.35.38
12		26. 3. 54	27. 32. 11	29. 0. 31	30.28.50	31. 57. 10	33. 25. 29	34. 53. 48	36.22. 8
13		37. 50. 27	39. 18. 46	40. 47. 5	42.15.24	43. 43. 44	45. 12. 4	46. 40. 25	48. 8.47
14		49. 37. 10	51. 5. 34	52. 34. 0	54. 2.27	55. 30. 56	56. 59. 27	58. 28. 1	59.56.38
15		61. 25. 17	62. 53. 59	64. 22. 44	65.51.32	67. 20. 24	68. 49. 19	70. 18. 18	71.47.21
16		73. 16. 28	74. 45. 39	76. 14. 55	77.44.15	79. 13. 41	80. 43. 12	82. 12. 48	83.42.29

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
17	Antares.	85. 12. 16	86. 42. 8	88. 12. 5	89. 42. 8	91. 12. 18	92. 42. 34	94. 12. 57	95. 43. 27
18		97. 14. 4							
18	α Aquilæ.	48. 50. 40	50. 5. 22	51. 20. 46	52. 36. 51	53. 53. 36	55. 10. 59	56. 28. 57	57. 47. 29
19		59. 6. 34	60. 26. 9	61. 46. 12	63. 6. 42	64. 27. 40	65. 49. 2	67. 10. 48	68. 32. 58
20		69. 55. 30	71. 18. 22	72. 41. 34	74. 5. 7	75. 28. 59	76. 53. 10	78. 17. 40	79. 42. 27
21		81. 7. 32							
21	α Pegasi.	33. 20. 13	34. 45. 18	36. 11. 14	37. 37. 58	39. 5. 29	40. 33. 46	42. 2. 44	43. 32. 22
22		45. 2. 37	46. 33. 25	48. 4. 46	49. 36. 39	51. 9. 4	52. 41. 58	54. 15. 20	55. 49. 10
23		57. 23. 27	58. 58. 11	60. 33. 20	62. 8. 54	63. 44. 53			
23	α Arietis.					20. 11. 3	21. 45. 53	23. 21. 37	24. 58. 12
24		26. 35. 35	28. 13. 44	29. 52. 36	31. 32. 5	33. 12. 8	34. 52. 44	36. 33. 51	38. 15. 29
25		39. 57. 36	41. 40. 11	43. 23. 13	45. 6. 41	46. 50. 35	48. 34. 55	50. 19. 39	52. 4. 47
26		53. 50. 19							
26	Aldebaran.	21. 10. 31	22. 53. 22	24. 37. 0	26. 21. 22	28. 6. 27	29. 52. 11	31. 38. 30	33. 25. 22
27		35. 12. 45	37. 0. 34	38. 48. 48	40. 37. 26	42. 26. 27	44. 15. 49	46. 5. 30	47. 55. 29
28		49. 45. 46	51. 36. 19	53. 27. 6	55. 18. 8	57. 9. 22	59. 0. 48	60. 52. 23	62. 44. 7
29		64. 35. 59	66. 27. 58	68. 20. 3	70. 12. 12	72. 4. 25			

Configurations of the SATELLITES of JUPITER at a Quarter past Three o'Clock in the Morning.



Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	M.	Giles.
2	Tu.	Lond. burnt 1666, O.S.
3	W.	
4	Th.	
5	F.	
6	Sa.	
7	*Su.*	*16th Su.aft.Tr.* Enurch.
8	M.	Nativity of B.V. Mary.
9	Tu.	
10	W.	
11	Th.	
12	F.	
13	Sa.	
14	*Su.*	*17th Sunday after Trinity.*
15	M.	[Holy Croſs.
16	Tu.	
17	W.	Lambert.
18	Th.	
19	F.	
20	Sa.	
21	*Su.*	*18th Su.aft.Tr. St. Math.*
22	M.	*K.Geo.*III.*crown'd* 1761.
23	Tu.	[*Pr. Alfred born.*
24	W.	
25	Th.	
26	F.	St. Cyprian.
27	Sa.	
28	*Su.*	*19th Sunday after Trinity.*
29	M.	*St. Mich. Prs. Char. Aug.*
30	Tu.	St Jerome, [*born.*

Phaſes of the Moon.	D. H. M.
Firſt Quarter - -	6. 21. 18
Full Moon - - -	15. 1. 10
Laſt Quarter - - -	22. 11. 38
New Moon - - -	29. 3. 45

Other Phenomena.	
D. H. M.	
4. 17. 11	☾ 1 ad ι ♎
5. 14. 53	☾ δ ♏
8. 2. 58	☾ 1 ad μ ♐
9.	♀ 1 ad α ♋ diff. Lat. 2′.
5. 17	☾ π ♐
10.	☿ 2 ad α ♋ diff. Lat. 10′.
17. 23	☾ β ♑
19. 7. 51	☾ δ ♈
21. 6. 27	☾ ι ♉
20. 28	☾ ζ ♉
21. 42	☉ enters ♎
22. 11. 31	☾ η ♊
14. 43	☾ μ ♊
17. 17	☾ ν ♊
23. 7. 17	☾ ζ ♊
24.	♀ ξ ♌ d. Lat. 3′.
25. 7. 11	☾ 2 ad α ♋
11. 21	☾ κ ♋
26. 0. 37	☾ ο ♌
8. 52	☾ π ♌
28. 1. 48	☾ e ♌

SEPTEMBER 1788. II.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. North.	Equat. of Time. Sub.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	M.	5. 9.37.28	10.44.44,7	7.58.10	0. 28,4	18,9
2	Tu.	5. 10.35.41	10.48.22,3	7.36. 9	0. 47,3	19,2
3	W.	5. 11.33.55	10.51.59,6	7.14. 2	1. 6,5	19,5
4	Th.	5. 12.32.11	10.55.36,6	6.51 48	1. 26,0	19,7
5	F.	5. 13.30.28	10.59.13,4	6.29.27	1. 45,7	19,9
6	Sa.	5. 14.28.47	11. 2.50,0	6. 6.59	2. 5,6	20,1
7	*Su.*	5. 15.27. 7	11. 6.26,4	5.44.26	2. 25,7	20,3
8	M.	5. 16.25.29	11.10. 2,6	5.21.47	2. 46,0	20,5
9	Tu.	5. 17.23.52	11.13.38,6	4.59. 3	3. 6,5	20,7
10	W.	5. 18.22.17	11.17.14,4	4.36.13	3. 27,2	20,8
11	Th.	5. 19.20.44	11.20.50,1	4.13.19	3. 48,0	20,9
12	F.	5. 20.19.12	11.24.25,7	3.50.21	4. 8,9	21,0
13	Sa.	5. 21.17.41	11.28. 1,2	3.27.19	4. 29,9	21,1
14	*Su.*	5. 22.16.12	11.31.36,6	3. 4.13	4. 51,0	21,1
15	M.	5. 23.14.46	11.35.12,0	2.41. 3	5. 12,1	21,1
16	Tu.	5. 24.13.21	11.38.47,4	2.17.50	5. 33,2	21,1
17	W.	5. 25.11.58	11.42.22,8	1.54.35	5. 54,3	21,1
18	Th.	5. 26.10.37	11.45.58,2	1.31.17	6. 15,4	21,0
19	F.	5. 27. 9.19	11.49.33,7	1. 7.57	6. 36,4	20,9
20	Sa.	5. 28. 8. 3	11.53. 9,2	0.44.35	6. 57,3	20,9
21	*Su.*	5. 29. 6.49	11.56.44,8	0.21.11 SOUTH.	7. 18,2	20,8
22	M.	6. 0. 5.37	12. 0.20,6	0. 2.14	7. 39,0	20,6
23	Tu.	6. 1. 4.28	12. 3.56,5	0.25.40	7. 59,6	20,4
24	W.	6. 2. 3.21	12. 7.32,6	0.49. 6	8. 20,0	20,2
25	Th.	6. 3. 2.17	12.11. 8,9	1.12.33	8. 40,2	20,0
26	F.	6. 4. 1.15	12.14.45,4	1.36. 0	9. 0,2	19,8
27	Sa.	6. 5. 0.15	12.18.22,1	1.59.26	9. 20,0	19,5
28	*Su.*	6. 5.59.18	12.21.59,1	2.22.51	9. 39,5	19,3
29	M.	6. 6.58.23	12.25.36,3	2.46.15	9. 58,8	19,0
30	Tu.	6. 7.57.30	12.29.13,8	3. 9.37	10. 17,8	

Days of the Month.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	15. 55,1	1. 4,3	2. 25,4	0,003534	8. 12. 24
7	15. 56,6	1. 4,1	2. 25,8	0,002854	8. 12. 4
13	15. 58,1	1. 4,0	2. 26,3	0,002134	8. 11. 45
19	15. 59,6	1. 4,0	2. 26,8	0,001416	8. 11. 26
25	16. 1,3	1. 4,1	2. 27,3	0,000694	8. 11. 7

Eclipſes of the SATELLITES of JUPITER.

I. Satellite. Immerſions.		II. Satellite. Immerſions.	
Days	H. M. S.	Days	H. M. S.
2	17. 6. 27	2	0. 4. 48
4	11. 35. 32	5	13. 22. 51
6	6. 4. 36	9	2. 41. 0
8	0. 33. 40	*12	15. 59. 7
9	19. 2. 45	16	5. 17. 17
*11	13. 31. 50	19	18. 35. 29
13	8. 0. 55	23	7. 53. 42
15	2. 29. 59	26	21. 11. 52
16	20. 59. 5	30	10. 30. 0
*18	15. 28. 8		
20	9. 57. 11		
22	4. 26. 14		
23	22. 55. 16		
25	17. 24. 17		
27	11. 53. 17		
29	6. 22. 17		

III. Satellite.		
Days	H. M. S.	
2	9. 34. 2	I
2	12. 49. 38	E
*9	13. 35. 7	I
*9	16. 51. 30	E
16	17. 36. 12	I
16	20. 53. 19	E
23	21. 37. 9	I
24	0. 55. 0	E

IV. Satellite.		
*2	13. 52. 24	I
2	17. 19. 14	E
19	7. 57. 57	I
19	11. 31. 12	E

Days.	Heliocentric Longitude. S. D. M.	Heliocentric Latitude. D. M.	Geocentric Longitude. S. D. M.	Geocentric Latitude. D. M.	Declination. D. M.	Paſſage over Merid. H. M.
	MERCURY. Sup. ☌ 14d. 10h.					
1	3. 14. 8	5. 58 N	4. 27. 21	1. 33 N	13. 51 N	23. 19
4	4. 1. 50	6. 47	5. 2. 58	1. 44	12. 3	23. 30
7	4. 18. 14	7. 0	5. 8. 43	1. 48	9. 59	23. 41
10	5. 3. 12	6. 41	5. 14. 26	1. 46	7. 45	23. 52
13	5. 16. 47	6. 1	5. 20. 5	1. 38	5. 26	0. 1
16	5. 29. 7	5. 6	5. 25. 35	1. 26	3. 4	0. 8
19	6. 10. 24	4. 4	6. 0. 58	1. 11	0. 42 N	0. 16
22	6. 20. 50	2. 58	6. 6. 12	0. 54	1. 39 S	0. 24
25	7. 0. 33	1. 51	6. 11. 17	0. 35	3. 57	0. 31
28	7. 9. 45	0. 45	6. 16. 14	0. 14	6. 10	0. 38
30	7. 15. 39	0. 1	6. 19. 28	0. 0	7. 37	0. 43
	VENUS.					
1	11. 24. 48	3. 20 S	4. 7. 57	6. 40 S	11. 51 N	21. 46
7	0. 4. 20	3. 12	4. 9. 14	5. 49	12. 22	21. 32
13	0. 13. 53	2. 58	4. 11. 39	4. 55	12. 35	21. 21
19	0. 23. 28	2. 39	4. 15. 0	4. 1	12. 31	21. 14
25	1. 3. 3	2. 15	4. 19. 5	3. 8	12. 10	21. 10
	MARS.					
1	7. 4. 14	0. 26 N	6. 13. 26	0. 18 N	5. 2 S	2. 5
7	7. 7. 9	0. 21	6. 17. 22	0. 14	6. 37	1. 58
13	7. 10. 6	0. 15	6. 21. 21	0. 10	8. 11	1. 51
19	7. 13. 5	0. 10	6. 25. 22	0. 6	9. 43	1. 45
25	7. 16. 5	0. 4	6. 29. 25	0. 2	11. 15	1. 38
	JUPITER.					
1	3. 13. 46	0. 7 N	3. 22. 0	0. 6 N	21. 46 N	20. 48
7	3. 14. 16	0. 7	3. 23. 5	0. 7	21. 36	20. 31
13	3. 14. 46	0. 8	3. 24. 6	0. 7	21. 26	20. 14
19	3. 15. 16	0. 9	3. 25. 4	0. 8	21. 17	19. 56
25	3. 15. 46	0. 9	3. 25. 58	0. 9	21. 8	19. 38
	SATURN.					
1	11. 7. 40	1. 48 S	11. 7. 27	2. 0 S	10. 39 S	11. 53
7	11. 7. 52	1. 48	11. 7. 0	2. 1	10. 49	11. 30
13	11. 8. 3	1. 49	11. 6. 33	2. 1	10. 59	11. 6
19	11. 8. 15	1. 49	11. 6. 8	2. 1	11. 8	10. 43
25	11. 8. 27	1. 49	11. 5. 44	2. 0	11. 17	10. 20

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D.M.S.
1	M.	5. 26.38.47	6. 3.55.59	4. 51. 47 S	4.40.15 S
2	Tu.	6. 11. 6.57	6. 18.11. 6	4. 24. 22	4. 4.40
3	W.	6. 25. 8. 8	7. 1.57.53	3. 41. 35	3.15.41
4	Th.	7. 8.40.24	7. 15.15.53	2. 47. 29	2.17.28
5	F.	7. 21.44.40	7. 28. 7.14	1. 46. 8	1.13.56
6	Sa.	8. 4.24.10	8. 10.35.58	0. 41. 18 S	0. 8.36 S
7	*Su.*	8. 16.43.24	8. 22.47. 3	0. 23. 50 N.	0.55.39 N
8	M.	8. 28.47.38	9. 4.45.47	1. 26. 35	1.56.20
9	Tu.	9. 10.42.11	9. 16.37.24	2. 24. 38	2.51.16
10	W.	9. 22.32. 6	9. 28.26.44	3. 15. 59	3.38.33
11	Th.	10. 4.21.53	10. 10.17.56	3. 58. 46	4.16.26
12	F.	10. 16.15.18	10. 22.14.16	4. 31. 20	4.43.19
13	Sa.	10. 28.15.11	11. 4.18.10	4. 52. 12	4.57.51
14	*Su.*	11. 10.23.28	11. 16.31. 8	5. 0. 8	4.58.59
15	M.	11. 22.41.18	11. 28.53.58	4. 54. 19	4.46. 8
16	Tu.	0. 5. 9.12	0. 11.27. 1	4. 34. 25	4.19.19
17	W.	0. 17.47.26	0. 24.10.28	4. 0. 52	3.39.15
18	Th.	1. 0.36.12	1. 7. 4.41	3. 14. 40	2.47.21
19	F.	1. 13.36. 1	1. 20.10.19	2. 17. 37	1.45.47
20	Sa.	1. 26.47.44	2. 3.28.23	1. 12. 15	0.37.24 N
21	*Su.*	2. 10.12.30	2. 17. 0. 9	0. 1. 43 N	0.34.22 S
22	M.	2. 23.51.37	3. 0.46.50	1. 10. 16 S	1.45.29
23	Tu.	3. 7.46. 2	3. 14.49. 8	2. 19. 27	2.51.36
24	W.	3. 21.56. 4	3. 29. 6.41	3. 21. 22	3.48.11
25	Th.	4. 6.20.37	4. 13.37.28	4. 11. 36	4.31. 3
26	F.	4. 20.56.37	4. 28.17.20	4. 46. 11	4.56.39
27	Sa.	5. 5.38.48	5. 13. 0. 5	5. 2. 11	5. 2.46
28	*Su.*	5. 20.20.11	5. 27.38. 7	4. 58. 19	4.49. 2
29	M.	6. 4.52.52	6. 12. 3.37	4. 35. 8	4.16.59
30	Tu.	6. 19. 9.30	6. 26. 9.58	3. 55. 0	3.29.42

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Passage over Merid.	☽'s Right Ascens. at Noon.	☽'s Right Ascens. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	M.	3	0. 57	174. 59	181. 45	3. 8 S	5. 51 S
2	Tu.	4	1. 49	188. 28	195. 11	8. 27	10. 54
3	W.	5	2. 41	201. 54	208. 37	13. 10	15. 14
4	Th.	6	3. 33	215. 21	222. 5	17. 3	18. 37
5	F.	7	4. 25	228. 50	235. 34	19. 56	20. 58
6	Sa.	8	5. 17	242. 17	248. 58	21. 43	22. 12
7	*Su.*	9	6. 8	255. 37	262. 12	22. 24	22. 20
8	M.	10	6. 58	268. 42	275. 7	22. 1	21. 27
9	Tu.	11	7. 47	281. 26	287. 39	20. 38	19. 36
10	W.	12	8. 34	293. 46	299. 48	18. 21	16. 55
11	Th.	13	9. 19	305. 43	311. 34	15. 19	13. 34
12	F.	14	10. 2	317. 20	323. 3	11. 40	9. 39
13	Sa.	15	10. 45	328. 43	334. 22	7. 31	5. 19
14	*Su.*	16	11. 28	340. 1	345. 40	3. 3 S	0. 44 S
15	M.	17	12. 12	351. 21	357. 5	1. 36 N	3. 56 N
16	Tu.	18	12. 57	2. 54	8. 48	6. 15	8. 31
17	W.	19	13. 44	14. 50	21. 6	10. 42	12. 47
18	Th.	20	14. 33	27. 19	33. 47	14. 44	16. 31
19	F.	21	15. 25	40. 25	47. 13	18. 7	19. 30
20	Sa.	22	16. 20	54. 12	61. 19	20. 38	21. 29
21	*Su.*	23	17. 17	68. 34	75. 56	22. 8	22. 15
22	M.	24	18. 15	83. 22	90. 50	22. 9	21. 42
23	Tu.	25	19. 14	98. 19	105. 45	20. 55	19. 48
24	W.	26	20. 11	113. 8	120. 26	18. 22	16. 38
25	Th.	27	21. 6	127. 39	134. 46	14. 39	12. 25
26	F.	28	22. 0	141. 48	148. 44	10. 0	7. 26
27	Sa.	29	22. 52	155. 36	162. 24	4. 46 N	2. 1 N
28	*Su.*	30	23. 44	169. 10	175. 54	0. 44 S	3. 28 S
29	M.	1	☌	182. 39	189. 24	6. 8	8. 43
30	Tu.	2	0. 37	196. 10	202. 57	11. 8	13. 22

Days of the Month.	Days of the Week.	Semid^r. ☽ at Noon. M. S.	Semid^r. ☽ at Midnight. M. S.	Hor. Par. ☽ at Noon. M. S.	Hor. Par. ☽ at Midnight. M. S.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
1	M.	16. 25	16. 19	60. 13	59. 51	4755	4782
2	Tu.	16. 12	16. 5	59. 26	59. 0	4812	4844
3	W.	15. 57	15. 49	58. 33	58. 5	4877	4912
4	Th.	15. 42	15. 35	57. 37	57. 10	4947	4981
5	F.	15. 28	15. 21	56. 44	56. 19	5014	5046
6	Sa.	15. 15	15. 9	55. 56	55. 35	5076	5103
7	*Su.*	15. 4	15. 0	55. 17	55. 1	5127	5148
8	M.	14. 56	14. 52	54. 47	54. 35	5166	5182
9	Tu.	14. 50	14. 48	54. 26	54. 19	5194	5203
10	W.	14. 47	14. 46	54. 15	54. 13	5209	5211
11	Th.	14. 46	14. 47	54. 13	54. 15	5211	5209
12	F.	14. 48	14. 50	54. 19	54. 25	5203	5195
13	Sa.	14. 52	14. 54	54. 32	54. 40	5186	5175
14	*Su.*	14. 57	15. 0	54. 50	55. 1	5162	5148
15	M.	15. 3	15. 6	55. 12	55. 24	5133	5118
16	Tu.	15. 9	15. 13	55. 37	55. 51	5100	5082
17	W.	15. 17	15. 21	56. 5	56. 20	5064	5045
18	Th.	15. 25	15. 29	56. 35	56. 50	5026	5006
19	F.	15. 34	15. 38	57. 6	57. 22	4986	4967
20	Sa.	15. 42	15. 47	57. 38	57. 54	4946	4926
21	*Su.*	15. 51	15. 56	58. 11	58. 27	4905	4885
22	M.	16. 0	16. 4	58. 43	58. 59	4865	4845
23	Tu.	16. 9	16. 13	59. 15	59. 29	4826	4809
24	W.	16. 16	16. 19	59. 42	59. 53	4793	4779
25	Th.	16. 22	16. 24	60. 3	60. 11	4768	4758
26	F.	16. 26	16. 26	60. 17	60. 19	4751	4748
27	Sa.	16. 26	16. 25	60. 18	60. 14	4750	4754
28	*Su.*	16. 23	16. 20	60. 7	59. 56	4763	4776
29	M.	16. 16	16. 11	59. 42	59. 25	4793	4813
30	Tu.	16. 6	16. 0	59. 5	58. 44	4838	4864

Distances of ☽'s Center from Sun, and from Stars east of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S	D. M. S.	D. M. S.	D. M. S.	D. M. S
1	Antares.	69. 54. 6	68. 4. 56	66. 16. 8	64. 27. 41	62. 39. 36	60. 51. 53	59. 4. 33	57. 17. 38
2		55. 31. 7	53. 45. 1	51. 59. 21	50. 14. 8	48. 29. 21	46. 45. 1	45. 1. 8	43. 17. 42
3		41. 34. 44	39. 52. 14	38. 10. 13	36. 28. 41	34. 47. 38	33. 7. 4	31. 27. 0	29. 47. 27
4		28. 8. 24							
4	α Aquilæ.	82. 47. 20	81. 17. 39	79. 48. 26	78. 19. 40	76. 51. 22	75. 23. 33	73. 56. 14	72. 29. 26
5		71. 3. 10	69. 37. 25	68. 12. 13	66. 47. 36	65. 23. 32	64. 0. 2	62. 37. 7	61. 14. 49
6		59. 53. 6							
6	Fomal-haut.	86. 28. 38	85. 4. 29	83. 40. 38	82. 17. 6	80. 53. 53	79. 31. 0	78. 8. 26	76. 46. 12
7		75. 24. 18	74. 2. 45	72. 41. 33	71. 20. 43	70. 0. 14	68. 40. 7	67. 20. 23	66. 1. 3
8		64. 42. 6	63. 23. 33	62. 5. 25	60. 47. 42	59. 30. 25			
8	α Pegasi.					75. 57. 35	74. 31. 6	73. 4. 47	71. 38. 37
9		70. 12. 37	68. 46. 45	67. 21. 2	65. 55. 27	64. 30. 1	63. 4. 42	61. 39. 32	60. 14. 28
10		58. 49. 33	57. 24. 46	56. 0. 8	54. 35. 39	53. 11. 18	51. 47. 6	50. 23. 3	48. 59. 11
11		47. 35. 30	46. 12. 1	44. 48. 46	43. 25. 46	42. 3. 3	40. 40. 38	39. 18. 33	37. 56. 49
12		36. 35. 26							
12	α Arietis.	77. 52. 36	76. 23. 56	74. 55. 10	73. 26. 19	71. 57. 23	70. 28. 21	68. 59. 13	67. 29. 59
13		66. 0. 40	64. 31. 14	63. 1. 42	61. 32. 3	60. 2. 18	58. 32. 26	57. 2. 28	55. 32. 23
14		54. 2. 12	52. 31. 54	51. 1. 30	49. 31. 0	48. 0. 24	46. 29. 42	44. 58. 54	43. 28. 1
15		41. 57. 3							

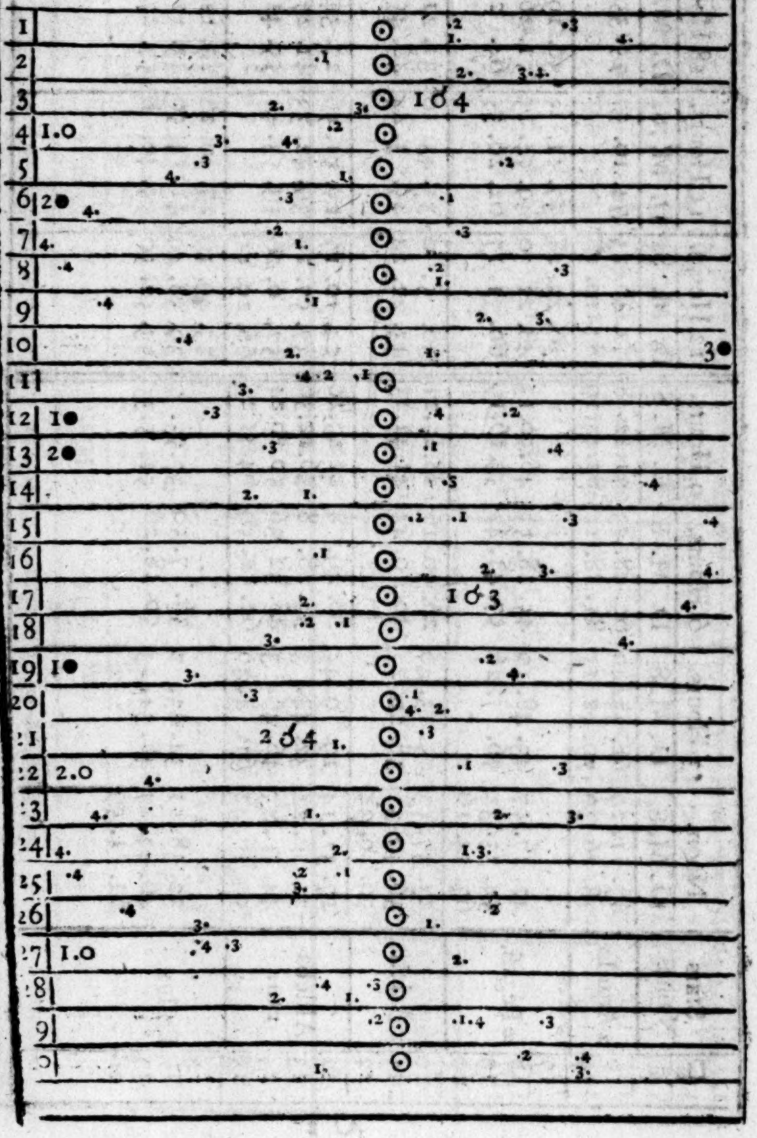
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D M. S.
15	Aldebaran.	74. 46. 29	73. 14. 24	71. 42. 9	70. 9. 45	68. 37. 11	67. 4. 28	65. 31. 35	63. 58. 33
16		62. 25. 21	60. 52. 0	59. 18. 29	57. 44. 49	56. 11. 0	54. 37. 1	53. 2. 54	51. 28. 38
17		49. 54. 14	48. 19. 41	46. 44. 59	45. 10. 9	43. 35. 11	42. 0. 5	40. 24. 52	38. 49. 32
18		37. 14. 6	35. 38. 34	34. 2. 58	32. 27. 18	30. 51. 37	29. 15. 57	27. 40. 18	26. 4. 39
19		24. 29. 3							
19	Pollux.	66. 36. 26	64. 59. 39	63. 22. 44	61. 45. 40	60. 8. 27	58. 31. 6	56. 53. 37	55. 16. 0
20		53. 38. 16	52. 0. 24	50. 22. 27	48. 44. 25	47. 6. 18	45. 28. 6	43. 49. 51	42. 11. 36
21		40. 33. 21	38. 55. 7	37. 16. 58	35. 38. 57	34. 1. 4	32. 23. 19	30. 45. 50	29. 8. 49
22		27. 32. 21	25. 56. 35	24. 21. 35	22. 47. 28	21. 14. 23			
20	The Sun.	121. 19. 52	119. 47. 28	118. 14. 51	116. 42. 0	115. 8. 56	113. 35. 38	112. 2. 6	110. 28. 20
21		108. 54. 20	107. 20. 6	105. 45. 38	104. 10. 57	102. 36. 1	101. 0. 51	99. 25. 27	97. 49. 50
22		96. 13. 58	94. 37. 52	93. 1. 32	91. 24. 59	89. 48. 12	88. 11. 11	86. 33. 56	84. 56. 28
23		83. 18. 46	81. 40. 51	80. 2. 42	78. 24. 20	76. 45. 46	75. 6. 59	73. 28. 0	71. 48. 48
24		70. 9. 24	68. 29. 48	66. 50. 1	65. 10. 3	63. 29. 55	61. 49. 36	60. 9. 7	58. 28. 30
25		56. 47. 43	55. 6. 47	53. 25. 44	51. 44. 34	50. 3. 17	48. 21. 54	46. 40. 27	44. 58. 56
26		43. 17. 21	41. 35. 44	39. 54. 7					

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
2	The Sun.					37. 17. 47	38. 54. 20	40. 30. 31	42. 6. 19
3		43. 41. 44	45. 16. 46	46. 51. 24	48. 25. 39	49. 59. 31	51. 32. 58	53. 6. 2	54. 38. 42
4		56. 10. 57	57. 42. 48	59. 14. 16	60. 45. 20	62. 16. 1	63. 46. 18	65. 16. 12	66. 45. 43
5		68. 14. 52	69. 43. 39	71. 12. 4	72. 40. 8	74. 7. 51	75. 35. 14	77. 2. 17	78. 29. 0
6		79. 55. 24	81. 21. 30	82. 47. 18	84. 12. 49	85. 38. 2	87. 2. 59	88. 27. 40	89. 52. 6
7		91. 16. 17	92. 40. 14	94. 3. 57	95. 27. 26	96. 50. 41	98. 13. 45	99. 36. 39	100. 59. 22
8		102. 21. 54	103. 44. 16	105. 6. 29	106. 28. 34	107. 50. 30	109. 12. 18	110. 33. 58	111. 55. 32
9		113. 17. 0	114. 38. 22	115. 59. 39	117. 20. 52	118. 42. 0	120. 3. 4		
7	Spica ♍	55. 52. 16	57. 23. 47	58. 55. 4	60. 26. 8	61. 57. 0	63. 27. 40	64. 58. 9	66. 28. 27
8		67. 58. 35	69. 28. 33	70. 58. 22	72. 28. 3	73. 57. 35			
8	Antares.					28. 39. 53	30. 8. 27	31. 36. 58	33. 5. 27
9		34. 33. 53	36. 2. 17	37. 30. 39	38. 59. 0	40. 27. 19	41. 55. 37	43. 23. 54	44. 52. 11
10		46. 20. 27	47. 48. 43	49. 17. 0	50. 45. 18	52. 13. 37	53. 41. 57	55. 10. 20	56. 38. 45
11		58. 7. 13	59. 35. 44	61. 4. 18	62. 32. 56	64. 1. 37	65. 30. 23	66. 59. 13	68. 28. 8
12		69. 57. 9	71. 26. 15	72. 55. 27	74. 24. 45	75. 54. 9	77. 23. 40	78. 53. 19	80. 23. 4
13		81. 52. 57	83. 22. 56	84. 53. 3	86. 23. 18	87. 53. 41	89. 24. 12	90. 54. 52	92. 25. 41
14		93. 56. 40							
14	α Aquilæ	46. 11. 2	47. 24. 39	48. 39. 8	49. 54. 26	51. 10. 32	52. 27. 21	53. 44. 53	55. 3. 7
15		56. 22. 0	57. 41. 26	59. 1. 23	60 21. 53	61. 42. 54	63. 4. 23	64. 26. 19	65. 48. 41

Days.	Stars Names.	Noon. D. M. S.	3 Hours. D. M. S.	6 Hours. D. M. S.	9 Hours. D. M. S.	12 Hours. D. M. S.	15 Hours. D. M. S.	18 Hours. D. M. S.	21 Hours. D. M. S.
16	α Aquilæ.	67.11.29	68.34.40	69.58.13	71.22. 8	72.46.23	74.10.57	75.35.50	77. 1. 1
17		78.26.30	79.52.15	81.18.15	82.44.29	84.10.58			
17	α Pegaſi.					36.23.28	37.51. 5	39.19.23	40.48.21
18		42.17.57	43.48.10	45.18.55	46.50.13	48.22. 0	49.54.15	51.26.56	53. 0. 1
19		54.33.32	56. 7.26	57.41.42	59.16.19	60.51.17	62.26.35	64. 2.11	65.38. 5
20		67.14.16							
20	α Arietis.	23.37.53	25.13.46	26.50.16	28.27.21	30. 5. 0	31.43.10	33.21.51	35. 0.58
21		36.40.31	38.20.27	40. 0.44	41.41.23	43.22.24	45. 3.44	46.45.24	48.27.20
22		50. 9.34							
22	Aldebaran.	17.31.14	19. 9.45	20.49. 8	22.29.20	24.10.17	25.51.56	27.34.12	29.17. 2
23		31. 0.21	32.44. 3	34.28. 8	36.12.36	37.57.25	39.42.33	41.27.59	43.13.43
24		44.59.45	46.46. 3	48.32.36	50.19.24	52. 6.26	53.53.41	55.41. 9	57.28.49
25		59.16.42	61. 4.46	62.52.59	64.41.2[illegible]	66.29.55			
25	Pollux.					25.49.19	27.30.28	29.12.30	30.55.19
26		32.38.51	34.23. 2	36. 7.50	37.53. 7	39.38.49	41.24.50	43.11. 7	44.57.40
27		46.44.27	48.31.23	50.18.26	52. 5.35	53.52.50	55.40. 8	57.27.26	59.14.43
28		61. 1.59							

Configurations of the SATELLITES of JUPITER at Four o' Clock in the Morning.



Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	W.	Remigius.
2	Th.	
3	F.	
4	Sa.	
5	*Su.*	*20th Sunday after Trinity.*
6	M.	Faith.
7	Tu.	
8	W.	
9	Th.	St. Denys.
10	F.	Oxf. and Cam. Ter. beg.
11	Sa.	
12	*Su.*	*21ſt Sunday after Trinity.*
13	M.	Tranſl. of K. Edw. Conf.
14	Tu.	
15	W.	
16	Th.	
17	F.	Etheldred.
18	Sa.	*St. Luke.*
19	*Su.*	*22d Sunday after Trinity.*
20	M.	
21	Tu.	
22	W.	
23	Th.	
24	F.	
25	Sa.	*K. Geo. III. Acceſ.* Criſp.
26	*Su.*	*23d Su. aft. Tr. K. Geo. III.*
27	M.	[*procl.* 1760.
28	Tu.	*St. Simon and St. Jude.*
29	W.	
30	Th.	
31	F.	

Phaſes of the Moon.	D. H. M.
Firſt Quarter –	6. 15. 28
Full Moon ––	14. 15. 50
Laſt Quarter –	21. 18. 43
New Moon —	28. 15. 29

Other Phenomena.

D. H. M.	
2. 2.42	☾ 1 ad ι ♎
23.56	☾ ☌ ♏
5.10.58	☾ 1 ad μ ♐
8. 1. 0	☾ β ♑
16.14. 7	☾ ☌ ♈
18.10.50¾	Im. of ι ♉ * 7′½ S. of ☽'s cent.
11.45½	Em. * 8′ S.
19.	☿ 1 ad ι ♎ d.L. 18′.
2. 0	☾ ζ ♉
17. 0	☾ η ♊
22.48	☾ ν ♊
20.12.53	☾ ζ ♊
22. 5.39	☉ enters ♏
11.48¼	Im. of z ad α ♋ * 3′ N. of ☽'s cent.
12.36½	Em. * 2′¼ N.
12.41	☾ 1 ad α ♋
17.52	☾ κ ♋
23.16. 0	☾ π ♌
25.10. 9	☾ e ♌
28.	☿ ☌ ♏ d.L. 47′.
29.22.37	☾ ♂
31.	♂ κ ♎ d.L. 21′.

OCTOBER 1788.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. South.	Equat. of Time. Sub.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	W.	6. 8.56.38	12.32.51,6	3.32.58	10.36,5	18,4
2	Th.	6. 9.55.49	12.36.29,7	3.56.15	10.54,9	18,1
3	F.	6. 10.55. 2	12.40. 8,1	4.19.30	11.13,0	17,8
4	Sa.	6. 11.54.17	12.43.46,8	4.42.42	11.30,8	17,5
5	*Su.*	6. 12.53.33	12.47.25,9	5. 5.50	11.48,3	17,1
6	M.	6. 13.52.51	12.51. 5,3	5.28.55	12. 5,4	16,6
7	Tu.	6. 14.52.11	12.54.45,2	5.51.55	12.22,0	16,3
8	W.	6. 15.51.32	12.58.25,4	6.14.50	12.38,3	15,8
9	Th.	6. 16.50.55	13. 2. 6,1	6.37.40	12.54,1	15,4
10	F.	6. 17.50.20	13. 5.47,2	7. 0.24	13. 9,5	14,9
11	Sa.	6. 18.49.47	13. 9.28,8	7.23. 3	13.24,4	14,5
12	*Su.*	6. 19.49.15	13.13.10,8	7.45.36	13.38,9	13,9
13	M.	6. 20.48.45	13.16.53,4	8. 8. 2	13.52,8	13,4
14	Tu.	6. 21.48.17	13.20.36,5	8.30.21	14. 6,2	12,8
15	W.	6. 22.47.52	13.24.20,2	8.52.33	14.19,0	12,3
16	Th.	6. 23.47.28	13.28. 4,5	9.14.38	14.31,3	11,7
17	F.	6. 24.47. 7	13.31.49,4	9.36.35	14.43,0	11,0
18	Sa.	6. 25.46.48	13.35.34,9	9.58.23	14.54,0	10,3
19	*Su.*	6. 26.46.31	13.39.21,0	10.20. 3	15. 4,3	9,7
20	M.	6. 27.46.16	13.43. 7,8	10.41.34	15.14,0	9,0
21	Tu.	6. 28.46. 4	13.46.55,3	11. 2.55	15.23,0	8,4
22	W.	6. 29.45.54	13.50.43,5	11.24. 6	15.31,4	7,6
23	Th.	7. 0.45.47	13.54.32,5	11.45. 7	15.39,0	6,9
24	F.	7. 1.45.42	13.58.22,1	12. 5.58	15.45,9	6,1
25	Sa.	7. 2.45.29	14. 2.12,5	12.26.37	15.52,0	5,4
26	*Su.*	7. 3.45.38	14. 6. 3,6	12.47. 5	15.57,4	4,7
27	M.	7. 4.45.39	14. 9.55,5	13. 7.21	16. 2,1	3,9
28	Tu.	7. 5.45.43	14.13.48,1	13.27.25	16. 6,0	3,1
29	W.	7. 6.45.48	14.17.41,5	13.47.17	16. 9,1	2,3
30	Th.	7. 7.45.56	14.21.35,8	14. 6.55	16.11,4	1,6
31	F.	7. 8.46. 5	14.25.30,8	14.26.19	16.13,0	

Days.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 3,0	1. 4,3	2. 27,9	9.999949	8. 10. 48
7	16. 4,6	1. 4,7	2. 28,4	9.999179	8. 10. 29
13	16. 6,2	1. 5,1	2. 28,9	9.998414	8. 10. 10
19	16. 7,9	1. 5,6	2. 29,3	9.997687	8. 9. 51
25	16. 9,5	1. 6,2	2. 29,8	9.996997	8. 9. 32

Eclipſes of the SATELLITES of JUPITER.

I. Satellite. Immerſions. Days	H. M. S.
1	0. 51. 14
2	19. 20. 10
*4	13. 49. 6
6	8. 18. 1
8	2. 46. 55
9	21. 15. 46
*11	15. 44. 37
13	10. 13. 23
15	4. 42. 9
16	23. 10. 52
*18	17. 39. 34
*20	12. 8. 13
22	6. 36. 50
24	1. 5. 25
25	19. 33. 58
*27	14. 2. 27
29	8. 30. 56
31	2. 59. 21

II. Satellite. Immerſions. Days	H. M. S.
3	23. 48. 8
*7	13. 6. 10
11	2. 24. 11
*14	15. 42. 7
18	4. 59. 58
21	18. 17. 43
25	7. 35. 22
28	20. 52. 54

III. Satellite. Days	H. M. S.	
1	1. 37. 54	I
1	4. 56. 30	E
8	5. 38. 24	I
8	8. 57. 38	E
15	9. 38. 25	I
*15	12. 58. 19	E
*22	13. 37. 51	I
*22	16. 58. 25	E
*29	17. 36. 40	I
29	20. 57. 53	E

IV. Satellite. Days	H. M. S.	
6	2. 2. 56	I
6	5. 42. 27	E
22	20. 6. 3	I
22	23. 51. 2	E

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Passage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
			MERCURY. Gr. Elong. 31^{d}.			
1	7. 18. 33	0. 20 S	6. 21. 4	0. 7 S	8. 20 S	0. 45
4	7. 27. 3	1. 22	6. 25. 46	0. 28	10. 24	0. 51
7	8. 5. 22	2. 21	7. 0. 22	0. 49	12. 23	0. 57
10	8. 13. 37	3. 16	7. 4. 51	1. 10	14. 15	1. 3
13	8. 21. 52	4. 8	7. 9. 13	1. 30	16. 0	1. 9
16	9. 0. 13	4. 54	7. 13. 28	1. 48	17. 37	1. 14
19	9. 8. 46	5. 36	7. 17. 36	2. 6	19. 7	1. 19
22	9. 17. 36	6. 10	7. 21. 34	2. 21	20. 27	1. 23
25	9. 26. 51	6. 37	7. 25. 20	2. 34	21. 37	1. 27
28	10. 6. 38	6. 55	7. 28. 52	2. 43	22. 35	1. 30
31	10. 17. 4	7. 0	8. 2. 5	2. 49	23. 21	1. 32
			VENUS. Gr. Elong. 19^{d}.			
1	1. 12. 39	1. 48 S	4. 23. 47	2. 18 S	11. 26 N	21. 8
7	1. 22. 16	1. 18	4. 28. 57	1. 32	10. 25	21. 7
13	2. 1. 54	0. 45	5. 4. 30	0. 50	9. 6	21. 7
19	2. 11. 34	0. 11 S	5. 10. 22	0. 12 S	7. 31	21. 8
25	2. 21. 14	0. 23 N	5. 16. 31	0. 22 N	5. 40	21. 9
			MARS.			
1	7. 19. 7	0. 2 S	7. 3. 30	0. 1 S	12. 43 S	1. 32
7	7. 22. 11	0. 8	7. 7. 38	0. 5	14. 9	1. 26
13	7. 25. 17	0. 14	7. 11. 47	0. 9	15. 32	1. 20
19	7. 28. 25	0. 20	7. 15. 59	0. 13	16. 51	1. 14
25	8. 1. 35	0. 26	7. 20. 13	0. 16	18. 5	1. 8
			JUPITER. □ 21^{d}. 3^{h}.			
1	3. 16. 15	0. 10 N	3. 26. 47	0. 10 N	20. 59 N	19. 20
7	3. 16. 45	0. 11	3. 27. 31	0. 11	20. 51	19. 1
13	3. 17. 15	0. 12	3. 28. 11	0. 11	20. 44	18. 42
19	3. 17. 44	0. 12	3. 28. 44	0. 12	20. 38	18. 22
25	3. 18. 14	0. 13	3. 29. 11	0. 13	20. 33	18. 1
			SATURN.			
1	11. 8. 38	1. 50 S	11. 5. 22	2. 0 S	11. 25 S	9. 57
7	11. 8. 50	1. 50	11. 5. 4	2. 0	11. 32	9. 34
13	11. 9. 2	1. 50	11. 4. 47	1. 59	11. 37	9. 11
19	11. 9. 13	1. 51	11. 4. 35	1. 58	11. 41	8. 48
25	11. 9. 25	1. 51	11. 4. 25	1. 58	11. 44	8. 25

OCTOBER 1788.

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	W.	7. 3. 4.28	7. 9.52.46	3. 1.37 S	2.31.17 S
2	Th.	7. 16.34.41	7. 23.10.15	1.59.17	1.26. 6
3	F.	7. 29.39.40	8. 6. 3.10	0.52.18 S	0.18.17 S
4	Sa.	8. 12.21.12	8. 18.34.14	0.15.29 N	0.48.41 N
5	*Su.*	8. 24.42.51	9. 0.47.35	1.20.55	1.51.56
6	M.	9. 6.49. 8	9. 12.48. 6	2.21.24	2.49. 6
7	Tu.	9. 18.45.11	9. 24.41. 0	3.14.49	3.38.20
8	W.	10. 0.36.16	10. 6.31.32	3.59.29	4.18. 3
9	Th.	10. 12.27.28	10. 18.24.34	4.33.49	4.46.40
10	F.	10. 24.23.22	11. 0.24.17	4.56.29	5. 3. 4
11	Sa.	11. 6.27.48	11. 12.34. 8	5. 6.19	5. 6. 6
12	*Su.*	11. 18.43.39	11. 24.56.28	5. 2.22	4.55. 0
13	M.	0. 1.12.45	0. 7.32.35	4.44. 3	4.29.30
14	Tu.	0. 13.55.55	0. 20.22.46	4.11.26	3.50. 0
15	W.	0. 26.53. 1	1. 3.26.35	3.25.20	2.57.45
16	Th.	1. 10. 3.17	1. 16.42.59	2.27.29	1.54.58
17	F.	1. 23.25.34	2. 0.10.50	1.20.34	0.44.46 N
18	Sa.	2. 6.58.41	2. 13.48.56	0. 8. 4 N	0.29. 1 S
19	*Su.*	2. 20.41.30	2. 27.36.17	1. 5.55 S	1.42. 5
20	M.	3. 4.33.10	3. 11.32. 3	2.16.54	2.49.54
21	Tu.	3. 18.32.51	3. 25.35.25	3.20.29	3.48. 9
22	W.	4. 2.39.38	4. 9.45.16	4.12.28	4.32.59
23	Th.	4. 16.52. 7	4. 23.59.51	4.49.21	5. 1.17
24	F.	5. 1. 8.11	5. 8.16.39	5. 8.34	5.11. 4
25	Sa.	5. 15.24.47	5. 22.32. 3	5. 8.45	5. 1.41
26	*Su.*	5. 29.37.57	6. 6.41.50	4.49.58	4.33.54
27	M.	6. 13.43.10	6. 20.41.21	4.13.46	3.49.58
28	Tu.	6. 27.35.55	7. 4.26.23	3.22.59	2.53.17
29	W.	7. 11.12.26	7. 17.53.44	2.21.25	1.47.55
30	Th.	7. 24.30.11	8. 1. 1.37	1.13.21	0.38.11 S
31	F.	8. 7.28. 8	8. 13.49.47	0. 2.57	0.31.55 N

OCTOBER 1788. VI.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſsage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſcen. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M	D. M.	D. M.	D. M.	D. M.
1	W.	3	1. 29	209. 47	216. 39	15. 24 S	17. 11 S
2	Th.	4	2. 23	223. 30	230. 23	18. 43	19. 59
3	F.	5	3. 16	237. 16	244. 7	20. 57	21. 38
4	Sa.	6	4. 8	250. 55	257. 39	22. 3	22. 10
5	*Su.*	7	4. 59	264. 18	270. 51	22. 1	21. 36
6	M.	8	5. 49	277. 18	283. 38	20. 56	20. 2
7	Tu.	9	6. 37	289. 50	295. 56	18. 56	17. 38
8	W.	10	7. 22	301. 55	307. 48	16. 9	14. 30
9	Th.	11	8. 6	313. 37	319. 21	12. 42	10. 47
10	F.	12	8. 49	325. 2	330. 41	8. 44	6. 37
11	Sa.	13	9. 32	336. 20	341. 59	4. 24 S	2. 8 S
12	*Su.*	14	10. 15	347. 40	353. 24	0. 10 N	2. 30 N
13	M.	15	11. 0	359. 13	5. 8	4. 49	7. 7
14	Tu.	16	11. 47	11. 10	17. 20	9. 22	11. 31
15	W.	17	12. 36	23. 40	30. 9	13. 34	15. 28
16	Th.	18	13. 28	36. 50	43. 40	17. 11	18. 41
17	F.	19	14. 23	50. 40	57. 50	19. 57	20. 56
18	Sa.	20	15. 20	65. 7	72. 30	21. 38	22. 1
19	*Su.*	21	16. 18	79. 57	87. 26	22. 3	21. 45
20	M.	22	17. 16	94. 53	102. 17	21. 7	20. 9
21	Tu.	23	18. 12	109. 37	116. 50	18. 52	17. 18
22	W.	24	19. 6	123. 57	130. 57	15. 29	13. 26
23	Th.	25	19. 58	137. 51	144. 38	11. 12	8. 48
24	F.	26	20. 49	151. 21	157. 59	6. 17	3. 40 N
25	Sa.	27	21. 40	164. 35	171. 10	1. 1 N	1. 39 S
26	*Su.*	28	22. 31	177. 44	184. 20	4. 17 S	6. 51
27	M.	29	23. 23	190. 57	197. 38	9. 19	11. 38
28	Tu.	30	☌	204. 22	211. 9	13. 47	15. 44
29	W.	1	0. 15	218. 0	224. 54	17. 27	18. 54
30	Th.	2	1. 8	231. 49	238. 44	20. 6	21. 1
31	F.	3	2. 1	245. 39	252. 32	21. 38	21. 58

OCTOBER 1788.

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon. M. S.	Semid^{r}. ☽ at Midnight. M. S.	Hor. Par. ☽ at Noon. M. S.	Hor. Par. ☽ at Midnight. M. S.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
1	W.	15. 54	15. 47	58. 21	57. 57	4892	4922
2	Th.	15. 41	15. 34	57. 32	57. 7	4953	4985
3	F.	15. 27	15. 21	56. 43	56. 20	5015	5045
4	Sa.	15. 15	15. 10	55. 58	55. 38	5073	5099
5	*Su.*	15. 4	15. 0	55. 19	55. 3	5124	5145
6	M.	14. 56	14. 53	54. 50	54. 39	5162	5177
7	Tu.	14. 51	14. 49	54. 30	54. 24	5189	5197
8	W.	14. 49	14. 48	54. 21	54. 20	5201	5202
9	Th.	14. 49	14. 50	54. 22	54. 26	5199	5194
10	F.	14. 52	14. 54	54. 32	54. 40	5186	5175
11	Sa.	14. 57	15. 0	54. 50	55. 2	5162	5146
12	*Su.*	15. 3	15. 7	55. 15	55. 29	5129	5111
13	M.	15. 11	15. 16	55. 45	56. 1	5090	5069
14	Tu.	15. 20	15. 25	56. 17	56. 34	5049	5027
15	W.	15. 29	15. 34	56. 50	57. 6	5006	4986
16	Th.	15. 38	15. 42	57. 22	57. 37	4966	4947
17	F.	15. 46	15. 50	57. 51	58. 5	4930	4912
18	Sa.	15. 53	15. 56	58. 17	58. 29	4897	4882
19	*Su.*	15. 59	16. 2	58. 40	58. 50	4869	4856
20	M.	16. 4	16. 6	58. 59	59. 6	4845	4837
21	Tu.	16. 8	16. 10	59. 13	59. 18	4828	4822
22	W.	16. 11	16. 12	59. 23	59. 25	4816	4812
23	Th.	16. 13	16. 13	59. 29	59. 30	4809	4808
24	F.	16. 13	16. 12	59. 30	59. 28	4808	4810
25	Sa.	16. 11	16. 10	59. 25	59. 19	4813	4821
26	*Su.*	16. 8	16. 5	59. 12	59. 2	4830	4842
27	M.	16. 2	15. 58	58. 50	58. 37	4856	4872
28	Tu.	15. 54	15. 49	58. 22	58. 5	4891	4912
29	W.	15. 44	15. 39	57. 46	57. 27	4936	4960
30	Th.	15. 34	15. 28	57. 7	56. 47	4985	5010
31	F.	15. 23	15. 17	56. 27	56. 7	5036	5062

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M S.	D. M. S.	D. M. S.	D. M. S.
1		87. 45. 34	86. 12. 43	84. 40. 16	83. 8. 14	81. 36. 35	80. 5. 21	78. 34. 34	77. 4. 15
2	α Aquilæ	75. 34. 23	74. 5. 0	72. 36. 8	71. 7. 47	69. 39. 58	68. 12. 41	66. 45. 59	65. 19. 52
3		63. 54. 21	62. 29. 28	61. 5. 14	59. 41. 41	58. 18. 48			
3	Fomalhaut.					85. 4. 37	83. 39. 6	82. 13. 57	80. 49. 10
4		79. 24. 46	78. 0. 44	76. 37. 5	75. 13. 50	73. 50. 59	72. 28. 32	71. 6. 30	69. 44. 53
5		68. 23. 42	67. 2. 58	65. 42. 42	64. 22. 54	63. 3. 34			
5						79. 43. 34	78. 15. 37	76. 47. 53	75. 20. 22
6		73. 53. 4	72. 25. 59	70. 59. 7	69. 32. 28	68. 6. 1	66. 39. 46	65. 13. 43	63. 47. 51
7	α Pegaſi.	62. 22. 11	60. 56. 42	59. 31. 25	58. 6. 19	56. 41. 23	55. 16. 37	53. 52. 3	52. 27. 40
8		51. 3. 29	49. 39. 31	48. 15. 46	46. 52. 15	45. 28. 59	44. 5. 58	42. 43. 13	41. 20. 45
9		39. 58. 33							
9		81. 36. 26	80. 8. 12	78. 39. 54	77. 11. 32	75. 43. 5	74. 14. 33	72. 45. 56	71. 17. 13
10	α Arietis.	69. 48. 24	68. 19. 28	66. 50. 26	65. 21. 16	63. 51. 59	62. 22. 34	60. 53. 1	59. 23. 20
11		57. 53. 30	56. 23. 31	54. 53. 24	53. 23. 8	51. 52. 43	50. 22. 9	48. 51. 26	47. 20. 35
12		45. 49. 35							
12	Aldebaran.	78. 42. 42	77. 10. 38	75. 38. 21	74. 5. 51	72. 33. 8	71. 0. 12	69. 27. 4	67. 53. 42
13		66. 20. 7	64. 46. 18	63. 12. 16	61. 38. 1	60. 3. 33	58. 28. 52	56. 53. 58	55. 18. 51
14		53. 43. 31	52. 7. 58	50. 32. 14	48. 56. 18	47. 20. 10	45. 43. 50	44. 7. 20	42. 30. 40

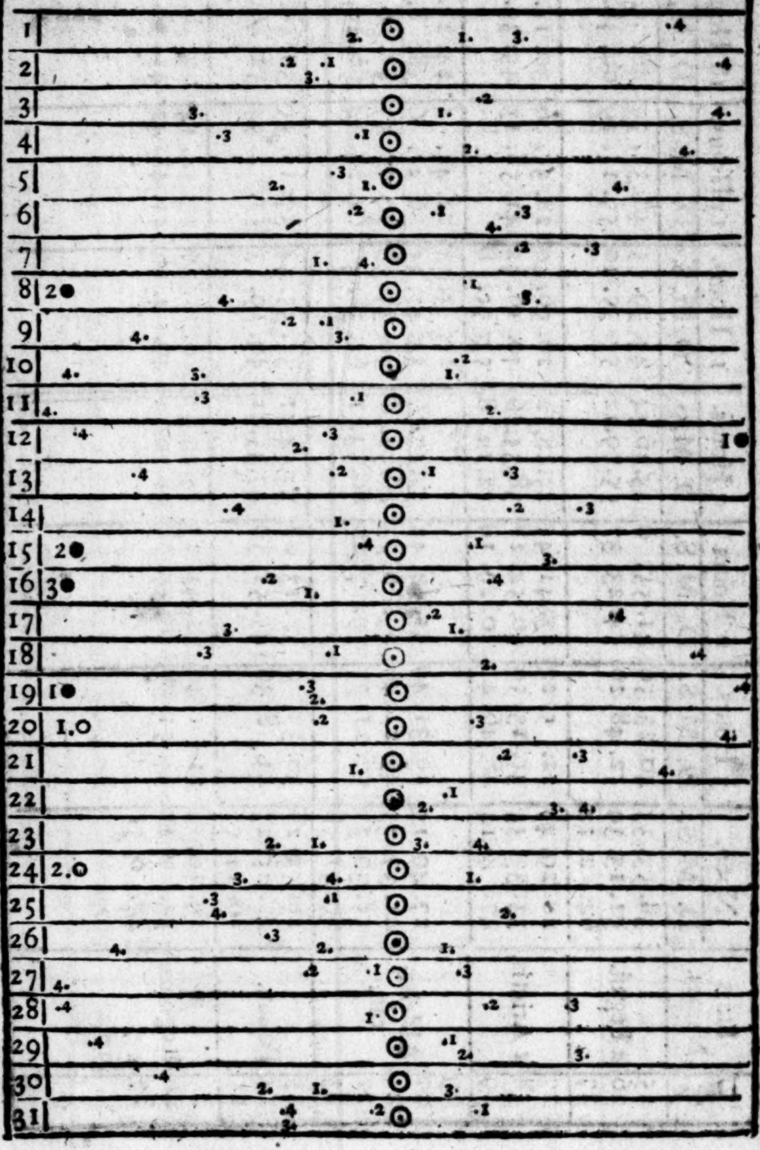
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
15	Aldebaran.	40. 53. 49	39. 16. 49	37. 39. 41	36. 2. 26	34. 25. 4	32. 47. 37	31. 10. 6	29. 32. 31
16		27. 54. 52							
16	Pollux.	70. 6. 50	68. 28. 44	66. 50. 28	65. 12. 3	63. 33. 28	61. 54. 44	60. 15. 54	58. 36. 57
17		56. 57. 54	55. 18. 45	53. 39. 32	52. 0. 15	50. 20. 54	48. 41. 31	47. 2. 7	45. 22. 44
18		43. 43. 24	42. 4. 9	40. 24. 58	38. 45. 55	37. 6. 56			
18	Regulus.					73. 5. 18	71. 22. 29	69. 39. 33	67. 56. 29
19		66. 13. 18	64. 30. 0	62. 46. 36	61. 3. 6	59. 19. 32	57. 35. 50	55. 52. 4	54. 8. 15
20		52. 24. 20	50. 40. 21	48. 56. 19	47. 12. 15	45. 28. 4	43. 43. 51	41. 59. 37	40. 15. 23
21		38. 31. 9	36. 46. 55	35. 2. 44	33. 18. 37	31. 34. 35	29. 50. 40	28. 6. 54	26. 23. 17
22		24. 39. 50							
19	The Sun.					119. 39. 16	118. 2. 36	116. 25. 49	114. 48. 56
20		113. 11. 56	111. 34. 49	109. 57. 36	108. 20. 17	106. 42. 51	105. 5. 19	103. 27. 42	101. 49. 59
21		100. 12. 10	98. 34. 16	96. 56. 17	95. 18. 13	93. 40. 4	92. 1. 50	90. 23. 32	88. 45. 10
22		87. 6. 44	85. 28. 14	83. 49. 40	82. 11. 3	80. 32. 22	78. 53. 38	77. 14. 51	75. 36. 2
23		73. 57. 10	72. 18. 16	70. 39. 20	69. 0. 23	67. 21. 24	65. 42. 23	64. 3. 21	62. 24. 18
24		60. 45. 16	59. 6. 14	57. 27. 13	55. 48. 13	54. 9. 13	52. 30. 15	50. 51. 20	49. 12. 27
25		47. 33. 37	45. 54. 50	44. 16. 7	42. 37. 29	40. 58. 55			
30	Fomalhaut.	95. 30. 52	94. 2. 26	92. 34. 16	91. 6. 20	89. 38. 40	88. 11. 16	86. 44. 9	85. 17. 22
31		83. 50. 53	82. 24. 44	80. 58. 56	79. 33. 30	78. 8. 25	76. 43. 42	75. 19. 22	73. 55. 26
N. 1		72. 31. 53							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon. D. M. S.	3 Hours. D. M. S.	6 Hours. D. M. S.	9 Hours. D. M. S.	12 Hours. D. M. S.	15 Hours. D. M. S.	18 Hours. D. M. S.	21 Hours. D. M. S.
2	The Sun.			39. 44. 31	41. 15. 26	42. 46. 1	44. 16. 16	45. 46. 11	47. 15. 45
3		48. 44. 59	50. 13. 53	51. 42. 26	53. 10. 39	54. 38. 33	56. 6. 7	57. 33. 22	59. 0. 19
4		60. 26. 56	61. 53. 15	63. 19. 17	64. 45. 1	66. 10. 28	67. 35. 38	69. 0. 33	70. 25. 12
5		71. 49. 37	73. 13. 45	74. 37. 39	76. 1. 20	77. 24. 47	78. 48. 2	80. 11. 6	81. 33. 58
6		82. 56. 39	84. 19. 9	85. 41. 30	87. 3. 41	88. 25. 43	89. 47. 37	91. 9. 24	92. 31. 4
7		93. 52. 37	95. 14. 5	96. 35. 28	97. 56. 47	99. 18. 1	100. 39. 12	102. 0. 21	103. 21. 28
8		104. 42. 32	106. 3. 35	107. 24. 38	108. 45. 41	110. 6. 44	111. 27. 49	112. 48. 57	114. 10. 7
9		115. 31. 20	116. 52. 36	118. 13. 55	119. 35. 18	120. 56. 45			
6	Antares.					36. 42. 6	38. 10. 59	39. 39. 47	41. 8. 30
7		42. 37. 8	44. 5. 43	45. 34. 14	47. 2. 42	48. 31. 8	49. 59. 32	51. 27. 54	52. 56. 15
8		54. 24. 36	55. 52. 56	57. 21. 17	58. 49. 39	60. 18. 2	61. 46. 27	63. 14. 54	64. 43. 25
9		66. 11. 59	67. 40. 37	69. 9. 19	70. 38. 6	72. 6. 59	73. 35. 58	75. 5. 3	76. 34. 15
10		78. 3. 34	79. 33. 0	81. 2. 34	82. 32. 17	84. 2. 8	85. 32. 8	87. 2. 18	88. 32. 39
11		90. 3. 10	91. 33. 51	93. 4. 43	94. 35. 47	96. 7. 2			
11	α Aquilæ.					47. 52. 44	49. 7. 59	50. 24. 3	51. 40. 55
12		52. 58. 33	54. 16. 55	55. 35. 58	56. 55. 41	58. 16. 2	59. 36. 58	60. 58. 27	62. 20. 28
13		63. 43. 2	65. 6. 5	66. 29. 37	67. 53. 36	69. 18. 2	70. 42. 53	72. 8. 9	73. 33. 48
14		74. 59. 50	76. 26. 13	77. 52. 55	79. 19. 57	80. 47. 18	82. 14. 57	83. 42. 53	85. 11. 5
15		86. 39. 34							

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
15	*α* Pegaſi.	38. 53. 33	40. 23. 56	41. 55. 0	43.26.44	44. 59. 5	46. 31. 59	48. 5. 23	49.39.17
16		51. 13. 39	52. 48. 26	54. 23. 37	55.59.12	57. 35. 10	59. 11. 29	60. 48. 8	62.25. 6
17		64. 2. 22							
17	*α* Arietis.	20. 29. 47	22. 5. 22	23. 41. 45	25.18.52	26. 56. 40	28. 35. 6	30. 14. 6	31.53.37
18		33. 33. 33	35. 13. 50	36. 54. 28	38.35.26	40. 16. 42	41. 58. 13	43. 39. 59	45.21.59
19		47. 4. 14	48. 46. 41	50. 29. 19	52.12. 8	53. 55. 8			
19	Aldebaran.					21. 3. 14	22. 44. 2	24. 25. 19	26. 7. 4
20		27. 49. 15	29. 31. 49	31. 14. 43	32.57.56	34. 41. 25	36. 25. 6	38. 8. 59	39.53. 5
21		41. 37. 23	43. 21. 49	45. 6. 23	46.51. 6	48. 35. 58	50. 20. 57	52. 6. 2	53.51.14
22		55. 36. 33	57. 21. 57	59. 7. 26	60.53. 1	62. 38. 40	64. 24. 24	66. 10. 12	67.56. 3
23		69. 41. 58							
23	Pollux.	28. 53. 27	30. 33. 9	32. 13. 28	33.54.21	35. 35. 44	37. 17. 35	38. 59. 51	40.42.28
24		42. 25. 23	44 8. 30	45. 51. 50	47.35.21	49. 19. 3	51. 2. 54	52. 46. 51	54.30.52
25		56. 14. 57							
25	Regulus.	19. 19. 19	21. 1. 40	22. 44. 27	24.27.37	26. 11. 7	27. 54. 54	29. 38. 54	31.23. 5
26		33. 7. 21	34. 51. 38	36. 35. 54	38.20.12	40. 4. 28	41. 48. 42	43. 32. 52	45.16.55
27		47. 0. 52							

Configurations of the SATELLITES of JUPITER at Five o' Clock in the Morning.



Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Sa.	*All Saints.*
2	*Su.*	*24th Su. aft. Tr. Pr. Ed. b.*
3	M.	*Prs. Soph. born.* On mor.
4	Tu.	[of All Souls, 1 ret.
5	W.	*Powder-Plot, 1605.*
6	Th.	Leon^d. Mich. Ter. beg.
7	F.	*D. of Cumberland born.*
8	Sa.	*Prs. Aug. Sophia born.*
9	*Su.*	*25th Sunday after Trinity.*
10	M.	
11	Tu.	St. Martin.
12	W.	On mor. of S. Mart. 2 ret.
13	Th.	Britius. [C. T. div. m.
14	F.	
15	Sa.	Machutus.
16	*Su.*	*26th Sunday after Trinity.*
17	M.	Hugh Bp. of Lincoln.
18	Tu.	In 8 days of St. Mart. 3
19	W.	[ret.
20	Th.	Edm. K. and Mart.
21	F.	
22	Sa.	Cecilia.
23	*Su.*	*27th Sunday after Trinity.*
24	M.	[St. Clement.
25	Tu.	*D. of Gl. b.* Cath. In 15
26	W.	[days of St. Mart. 4 ret.
27	Th.	
28	F.	Michaelmas Term ends.
29	Sa.	
30	*Su.*	*Advent Sun. St. Andrew.*

Phaſes of the Moon.

	D.	H.	M.
Firſt Quarter —	5.	11.	53
Full Moon —	13.	5.	40
Laſt Quarter —	20.	1.	49
New Moon —	27.	6.	10

Other Phenomena.

D.H.M.	
1.	♀ β ♍ d. L. 15′.
19.42	☾ 1 ad μ ♐
4.	♂ λ ♎ d. L. 29′.
9.11	☾ β ♑
6.	♄ Stationary.
8.	♀ η ♍ d. L. 1′.
11.	☿ Stationary.
12.22.21	☾ δ ♈
14.19.15	☾ ι ♉
15.	☿ ♂ d. L. 25′.
7.37	Im. of ζ ♉ * 14′ S. of ☾'s cent.
8. 4	Em. * 14′ S.
23.27	☾ η ♊
16.	♃ Stationary.
2.34	☾ μ ♊
5. 6	☾ ν ♊
18.52	☾ ζ ♊
18.17.39	Im. of 1 ad α ♋ * 12′ S. of ☾'s cent.
18.32	Em. * 8′½ S.
18.57	☾ 2 ad α ♋
23.12	☾ κ ♋
20.	♀ θ ♍ d. L. 11′.
21. 1.52	☉ enters ♐
14.10¾	Im. of θ ♌ * 4′½ S. of ☾'s cent.
15.12¼	Em. * 4′ S.
27.	☉ eclipſed, inviſ.
29. 4. 6	☾ 1 ad μ ♐
30.	☿ Stationary.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. South.	Equat. of Time. Sub.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Sa.	7. 9.46.16	14.29.26,6	14.45.29	16.13,8	0,0
2	*Su.*	7. 10.46.29	14.33.23,2	15. 4.25	16.13,8	0,9
3	M.	7. 11.46.43	14.37.20,6	15.23. 6	16.12,9	1,7
4	Tu.	7. 12.46.59	14.41.18,8	15.41.31	16.11,2	2,4
5	W.	7. 13.47.16	14.45.17,8	15.59.41	16. 8,8	3,2
6	Th.	7. 14.47.35	14.49.17,6	16.17.35	16. 5,6	4,1
7	F.	7. 15.47.55	14.53.18,3	16.35.12	16. 1,5	4,9
8	Sa.	7. 16.48.16	14.57.19,8	16.52.32	15.56,6	5,7
9	*Su.*	7. 17.48.39	15. 1.22,1	17. 9.35	15.50,9	6,6
10	M.	7. 18.49. 3	15. 5.25,2	17.26.21	15.44,3	7,4
11	Tu.	7. 19.49.29	15. 9.29,1	17.42.48	15.36,9	8,3
12	W.	7. 20.49.56	15.13.33,9	17.58.56	15.28,6	9,1
13	Th.	7. 21.50.25	15.17.39,6	18.14.46	15.19,5	9,9
14	F.	7. 22.50.55	15.21.46,1	18.30.17	15. 9,6	10,8
15	Sa.	7. 23.51.27	15.25.53,5	18.45.28	14.58,8	11,6
16	*Su.*	7. 24.52. 1	15.30. 1,7	19. 0.19	14.47,2	12,5
17	M.	7. 25.52.37	15.34.10,8	19.14.50	14.34,7	13,3
18	Tu.	7. 26.53.14	15.38.20,7	19.29. 0	14.21,4	14,2
19	W.	7. 27.53.53	15.42.31,5	19.42.48	14. 7,2	15,0
20	Th.	7. 28.54.34	15.46.43,1	19.56.15	13.52,2	15,8
21	F.	7. 29.55.17	15.50.55,5	20. 9.21	13.36,4	16,6
22	Sa.	8. 0.56. 1	15.55. 8,7	20.22. 5	13.19,8	17,5
23	*Su.*	8. 1.56.47	15.59.22,8	20.34.26	13. 2,3	18,2
24	M.	8. 2.57.35	16. 3.37,6	20.46.24	12.44,1	19,0
25	Tu.	8. 3.58.24	16. 7.53,2	20.57.59	12.25,1	19,7
26	W.	8. 4.59.15	16.12. 9,6	21. 9.10	12. 5,4	20,5
27	Th.	8. 6. 0. 7	16.16.26,7	21.19.57	11.44,9	21,2
28	F.	8. 7. 1. 0	16.20.44,5	21.30.20	11.23,7	21,8
29	Sa.	8. 8. 1.54	16.25. 2,9	21.40.18	11. 1,9	22,6
30	*Su.*	8. 9. 2.50	16.29.22,0	21.49.51	10.39,3	

Days.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 11,2	1. 6,9	2. 30,4	9. 996207	8. 9. 10
7	16. 12,7	1. 7,6	2. 30,8	9. 995554	8. 8. 51
13	16. 14,0	1. 8,4	2. 31,3	9. 994951	8. 8. 32
19	16. 15,2	1. 9,1	2. 31,7	9. 994428	8. 8. 13
25	16. 16,3	1. 9,7	2. 32,1	9. 993970	8. 7. 53

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite. Immerſions.

Days	H. M. S.
1	21. 27. 44
*3	15. 56. 3
5	10. 24. 20
7	4. 52. 35
8	23. 20. 48
*10	17. 48. 57
*12	12. 17. 5
14	6. 45. 9
16	1. 13. 11
17	19. 41. 11
*19	14. 9. 7
21	8. 37. 1
23	3. 4. 52
24	21. 32. 40
*26	16. 0. 27
*28	10. 28. 10
30	4. 55. 52

II. Satellite. Immerſions.

Days	H. M. S.
1	10. 10. 17
4	23. 27. 35
*8	12. 44. 49
12	2. 1. 54
*15	15. 18. 51
19	4. 35. 39
*22	17. 52. 18
26	7. 8. 51
29	20. 25. 20

III. Satellite.

Days	H. M. S.	
5	21. 34. 46	I
6	0. 56. 40	E
13	1. 32. 12	I
13	4. 54. 44	E
20	5. 28. 59	I
20	8. 52. 9	E
*27	9. 24. 56	I
*27	12. 48. 40	E

IV. Satellite.

Days	H. M. S.	
*8	14. 5. 32	I
*8	17. 56. 3	E
25	8. 1. 20	I
*25	11. 57. 11	E

NOVEMBER 1788. IV.

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Passage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
MERCURY. Inf. ☌ 20^{d}. $21\frac{1}{2}^{h}$.						
1	10. 20. 44	6, 58 S	8. 3. 3	2. 49 S	23. 33 S	1. 32
4	11. 2. 19	6. 43	8. 5. 36	2. 46	23. 59	1. 31
7	11. 14. 56	6. 7	8. 7. 26	2. 36	24. 8	1. 27
10	11. 28. 45	5. 8	8. 8. 16	2. 14	23. 55	1. 19
13	0. 13. 54	3. 43	8. 7. 47	1. 40	23. 16	1. 5
16	1. 0, 24	1. 52 S	8. 5. 46	0. 51 S	22. 8	0. 45
19	1. 18. 7	0. 17 N	8. 2. 23	0. 8 N	20. 32	0. 18
22	2. 6. 44	2. 30	7. 28. 19	1. 8	18. 42	23. 41
25	2, 25. 40	4. 30	7. 24. 45	1. 57	17. 4	23. 15
28	3. 14. 17	5. 58	7. 22. 35	2. 29	16. 2	22. 57
30	3. 26. 13	6. 36	7. 22. 5	2. 38	15. 46	22. 47
VENUS.						
1	3. 2. 33	1. 2 N	5. 23. 56	0. 56 N	3. 16 N	21. 10
7	3. 12. 16	1. 34	6. 0. 30	1. 20	1. 1 N	21. 11
13	3. 22. 0	2. 3	6. 7, 13	1. 40	1. 21 S	21. 12
19	4. 1. 45	2. 29	6, 14. 4	1. 55	3. 47	21. 12
25	4. 11. 30	2. 50	6, 21, 1	2. 5	6. 17	21. 13
MARS.						
1	8. 5. 18	0. 33 S	7, 25, 12	0, 20 S	19. 25 S	1. 2
7	8. 8, 32	0. 39	7. 29. 31	0. 24	20. 27	0. 55
13	8. 11. 49	0. 45	8. 3. 51	0. 27	21. 23	0. 49
19	8. 15. 7	0. 51	8. 8. 14	0. 31	22. 12	0. 43
25	8. 18. 27	0. 56	8. 12. 39	0. 34	22. 54	0. 37
JUPITER.						
1	3. 18. 49	0. 14 N	3. 29. 35	0, 14 N	20. 30 N	17. 35
7	3. 19. 18	0. 14	3. 29. 47	0. 15	20. 28	17. 12
13	3. 19. 48	0. 15	3. 29. 54	0, 16	20. 28	16. 48
19	3, 20. 17	0. 16	3. 29. 53	0. 17	20, 29	16, 23
25	3. 20. 46	0. 16	3. 29. 44	0. 19	20. 32	15. 57
SATURN. □ 25^{d}, 15^{h}.						
1	11. 9. 38	1. 51 S	11. 4. 18	1. 57 S	11. 45 S	7. 57
7	11, 9. 50	1. 52	11. 4. 17	1. 56	11. 45	7. 33
13	11. 10. 2	1. 52	11. 4. 19	1. 55	11. 44	7. 9
19	11. 10. 13	1. 52	11. 4. 25	1. 54	11. 41	6. 44
25	11. 10. 25	1. 53	11. 4. 35	1. 53	11. 36	6, 20

NOVEMBER 1788.

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D.M.S.
1	Sa.	8. 20. 6.52	8. 26.19.35	1. 6. 0 N	1.38.56 N
2	*Su.*	9. 2.28.22	9. 8.33.36	2.10.22	2.40. 1
3	M.	9. 14.35.48	9. 20.35.30	3. 7.40	3.33. 1
4	Tu.	9. 26.33.18	10. 2.29.45	3.55.58	4.16.15
5	W.	10. 8.25.30	10. 14.21. 6	4.33.46	4.48.20
6	Th.	10. 20.17.16	10. 26.14.32	4.59.52	5. 8.11
7	F.	11. 2.13.35	11. 8.14.54	5.13.14	5.14.51
8	Sa.	11. 14.19. 4	11. 20.26.32	5.13. 0	5. 7.34
9	*Su.*	11. 26.37.47	0. 2.53. 5	4.58.32	4.45.51
10	M.	0. 9.12.51	0. 15.37.12	4.29.33	4. 9.40
11	Tu.	0. 22. 6.20	0. 28.40.15	3.46.22	3.19.46
12	W.	1. 5.18.58	1. 12. 2.18	2.50. 9	2.17.49
13	Th.	1. 18.50. 6	1. 25.42. 2	1.43. 9	1. 6.37 N
14	F.	2. 2.37.46	2. 9.36.52	0.28.45 N	0. 9.53 S
15	Sa.	2. 16.38.54	2. 23.43.22	0.48.39 S	1.26.54
16	*Su.*	3. 0.49.48	3. 7.57.38	2. 4. 0	2.39.17
17	M.	3. 15. 6.25	3. 22.15.41	3.12.10	3.42. 4
18	Tu.	3. 29.24.59	4. 6.33.55	4. 8.30	4.31. 2
19	W.	4. 13.42. 7	4. 20.49.16	4.49.21	5. 3. 9
20	Th.	4. 27.55. 5	5. 4.59.15	5.12.17	5.16.38
21	F.	5. 12. 1.36	5. 19. 1.48	5.16.13	5.11. 5
22	Sa.	5. 25.59.45	6. 2.55.13	5. 1.24	4.47.23
23	*Su.*	6. 9.48. 1	6. 16.38. 1	4.29.18	4. 7.30
24	M.	6. 23.25. 1	7. 0. 8.54	3.42.22	3.14.19
25	Tu.	7. 6.49.32	7. 13.26.48	2.43.49	2.11.22
26	W.	7. 20. 0.38	7. 26.30.56	1.37.25	1. 2.30 S
27	Th.	8. 2.57.43	8. 9.20.55	0.27. 7 S	0. 8.21 N
28	F.	8. 15.40.36	8. 21.56.49	0.43.20 N	1.17.31
29	Sa.	8. 28. 9.42	9. 4.19.21	1.50.28	2.21.48
30	*Su.*	9. 10.26. 5	9. 16.29.59	2.51.14	3.18.29

NOVEMBER 1788. VI.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſsage over Merid. H. M.	☽'s Right Aſcenſion at Noon. D. M.	☽'s Right Aſcenſ. at Midn. D. M.	☽'s Declination at Noon. D. M.	☽'s Declination at Midn. D. M.
1	Sa.	5	2.54	259.20	266. 3	22. 0 S	21.46 S
2	*Su.*	6	3.45	272.39	279. 8	21.16	20.31
3	M.	7	4.33	285.29	291.43	19.33	18.22
4	Tu.	8	5.19	297.48	303.46	17. 0	15.28
5	W.	9	6. 4	309.38	315.24	13.46	11.56
6	Th.	10	6.47	321. 5	326.43	10. 0	7.57
7	F.	11	7.29	332.20	337.56	5.49	3.37 S
8	Sa.	12	8.11	343.33	349.12	1.22 S	0.55 N
9	*Su.*	13	8.54	354.56	0.45	3.13 N	5.31
10	M.	14	9.39	6.41	12.45	7.47	10. 0
11	Tu.	15	10.27	19. 0	25.25	12. 7	14. 8
12	W.	16	11.18	32. 2	38.51	15.59	17.39
13	Th.	17	12.13	45.52	53. 5	19. 6	20.17
14	F.	18	13.11	60.27	67.58	21.11	21.45
15	Sa.	19	14.10	75.35	83.14	21.59	21.52
16	*Su.*	20	15. 9	90.53	98.30	21.24	20.35
17	M.	21	16. 6	106. 1	113.25	19.26	17.58
18	Tu.	22	17. 1	120.41	127.47	16.14	14.16
19	W.	23	17.54	134.45	141.35	12. 6	9.46
20	Th.	24	18.44	148.17	154.53	7.19	4.47 N
21	F.	25	19.33	161.25	167.53	2.10 N	0.25 S
22	Sa.	26	20.22	174.20	180.46	3. 1 S	5.33
23	*Su.*	27	21.12	187.13	193.43	8. 1	10.21
24	M.	28	22. 2	200.16	206.52	12.33	14.34
25	Tu.	29	22.54	213.33	220.18	16.23	17.59
26	W.	30	23.46	227. 6	233.57	19.19	20.25
27	Th.	1	☌	240.49	247.41	21.13	21.44
28	F.	2	0.39	254.32	261.19	21.58	21.56
29	Sa.	3	1.30	268. 2	274.38	21.36	21. 2
30	*Su.*	4	2.20	281. 7	287.28	20.13	19.10

VII. NOVEMBER 1788.

Days of the Month.	Days of the Week.	Semidr. ☽ at Noon.	Semidr. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	Sa.	15. 13	15. 8	55. 49	55. 31	5085	5108
2	*Su.*	15. 3	14. 59	55. 15	55. 0	5129	5149
3	M.	14. 56	14. 53	54. 48	54. 38	5165	5178
4	Tu.	14. 51	14. 50	54. 30	54. 25	5189	5195
5	W.	14. 49	14. 49	54. 22	54. 22	5199	5199
6	Th.	14. 50	14. 51	54. 25	54. 30	5195	5189
7	F.	14. 53	14. 56	54. 38	54. 49	5178	5163
8	Sa.	14. 59	15. 3	55. 1	55. 15	5148	5129
9	*Su.*	15. 8	15. 13	55. 32	55. 50	5107	5084
10	M.	15. 18	15. 24	56. 10	56. 31	5058	5031
11	Tu.	15. 30	15. 35	56. 52	57. 13	5004	4977
12	W.	15. 41	15. 47	57. 34	57. 55	4951	4924
13	Th.	15. 52	15. 57	58. 14	58. 31	4901	4880
14	F.	16. 1	16. 5	58. 47	59. 2	4860	4842
15	Sa.	16. 8	16. 11	59. 14	59. 24	4827	4815
16	*Su.*	16. 13	16. 14	59. 31	59. 36	4806	4800
17	M.	16. 15	16. 16	59. 39	59. 40	4797	4795
18	Tu.	16. 15	16. 14	59. 39	59. 36	4797	4800
19	W.	16. 13	16. 12	59. 32	59. 26	4805	4812
20	Th.	16. 10	16. 8	59. 19	59. 11	4821	4831
21	F.	16. 5	16. 3	59. 2	58. 53	4842	4853
22	Sa.	16. 0	15. 57	58. 43	58. 32	4865	4878
23	*Su.*	15. 54	15. 50	58. 21	58. 8	4892	4908
24	M.	15. 47	15. 43	57. 55	57. 41	4924	4942
25	Tu.	15. 39	15. 35	57. 27	57. 12	4960	4979
26	W.	15. 31	15. 27	56. 57	56. 42	4998	5017
27	Th.	15. 23	15. 18	56. 26	56. 10	5037	5058
28	F.	15. 14	15. 10	55. 55	55. 40	5077	5097
29	Sa.	15. 6	15. 2	55. 25	55. 11	5116	5134
30	*Su.*	14. 59	14. 56	54. 58	54. 47	5152	5166

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	α Pegaſi.	90. 3. 0	88. 31. 59	87. 1. 15	85.30.46	84. 0. 34	82. 30. 38	81. 0. 58	79.31.33
2		78. 2. 24	76. 33. 31	75. 4. 54	73.36.32	72. 8. 26	70. 40. 35	69. 12. 59	67.45.38
3		66. 18. 32	64. 51. 41	63. 25. 4	61.58.42	60. 32. 34	59. 6. 40	57. 41. 0	56.15.35
4		54. 50. 24	53. 25. 28	52. 0. 47	50.36.22	49. 12. 12	47. 48. 19	46. 24. 43	45. 1.24
5		43. 38. 23							
5	α Arietis.	85. 34. 24	84. 6. 25	82. 38. 26	81.10.26	79. 42. 26	78. 14. 25	76. 46. 22	75.18.18
6		73. 50. 12	72. 22. 3	70. 53. 51	69.25.35	67. 57. 14	66. 28. 48	65. 0. 17	63.31.39
7		62. 2. 56	60. 34. 6	59. 5. 8	57.36. 3	56. 6. 50	54. 37. 28	53. 7. 57	51.38.17
8		50. 8. 28	48. 38. 30	47. 8. 22	45.38. 5	44. 7. 39	42. 37. 3	41. 6. 17	39.35.21
9		38. 4. 16							
9	Aldebaran.	70. 53. 38	69. 21. 2	67. 48. 10	66.15. 0	64. 41. 34	63. 7. 51	61. 33. 51	59.59.34
10		58. 25. 0	56. 50. 9	55. 15. 1	53.39.36	52. 3. 54	50. 27. 55	48. 51. 39	47.15. 6
11		45. 38. 16	44. 1. 10	42. 23. 48	40.46.11	39. 8. 18	37. 30. 10	35. 51. 49	34.13.17
12		32. 34. 34	30. 55. 40	29. 16. 39	27.37.34	25. 58. 28	24. 19. 24	22. 40. 25	21. 1.32
13		19. 22. 48							
13	Pollux.	61. 28. 49	59. 48. 1	58. 7. 2	56.25.52	54. 44. 31	53. 3. 2	51. 21. 27	49.39.47
14		47. 58. 2	46. 16. 14	44. 34. 26	42.52.39	41. 10. 54	39. 29. 13	37. 47. 42	36. 6.25
15		34. 25. 24	32. 44. 43	31. 4. 30	29.24.46	27. 45. 32			

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
15	Regulus.					63. 12. 9	61. 25. 59	59. 39. 45	57. 53. 27
16		56. 7. 6	54. 20. 43	52. 34. 19	50. 47. 55	49. 1. 30	47. 15. 6	45. 28. 44	43. 42. 24
17		41. 56. 8	40. 9. 56	38. 23. 51	36. 37. 54	34. 52. 5	33. 6. 26	31. 21. 0	29. 35. 47
18		27. 50. 48							
18	Spica ♍	81. 21. 38	79. 34. 31	77. 47. 28	76. 0. 29	74. 13. 34	72. 26. 43	70. 39. 57	68. 53. 15
19		67. 6. 38	65. 20. 7	63. 33. 41	61. 47. 21	60. 1. 7	58. 14. 59	56. 28. 57	54. 43. 2
20		52. 57. 13							
17	The Sun.							120. 42. 54	119. 3. 13
18		117. 23. 34	115. 43. 58	114. 4. 27	112. 24. 59	110. 45. 34	109. 6. 14	107. 26. 58	105. 47. 47
19		104. 8. 41	102. 29. 40	100. 50. 45	99. 11. 55	97. 33. 11	95. 54. 32	94. 16. 0	92. 37. 34
20		90. 59. 15	89. 21. 2	87. 42. 56	86. 4. 57	84. 27. 5	82. 49. 20	81. 11. 42	79. 34. 12
21		77. 56. 49	76. 19. 34	74. 42. 27	73. 5. 27	71. 28. 35	69. 51. 51	68. 15. 15	66. 38. 47
22		65. 2. 27	63. 26. 15	61. 50. 12	60. 14. 17	58. 38. 31	57. 2. 54	55. 27. 26	53. 52. 7
23		52. 16. 57	50. 41. 56	49. 7. 4	47. 32. 22	45. 57. 49	44. 23. 26	42. 49. 13	41. 15. 9
24		39. 41. 15							
29	α Pegasi.	82. 12. 50	80. 42. 46	79. 12. 55	77. 43. 19	76. 13. 56	74. 44. 47	73. 15. 52	71. 47. 12
30		70. 18. 47	68. 50. 37	67. 22. 42	65. 55. 1	64. 27. 35	63. 0. 25	61. 33. 30	60. 6. 51
D.1		58. 40. 26							

Distances of ☽'s Center from Sun, and from Stars east of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	α Pegasi.	90. 3. 0	88. 31. 59	87. 1. 15	85.30.46	84. 0. 34	82. 30. 38	81. 0. 58	79.31.33
2		78. 2. 24	76. 33. 31	75. 4. 54	73.36.32	72. 8. 26	70. 40. 35	69. 12. 59	67.45.38
3		66. 18. 32	64. 51. 41	63. 25. 4	61.58.42	60. 32. 34	59. 6. 40	57. 41. 0	56.15.35
4		54. 50. 24	53. 25. 28	52. 0. 47	50.36.22	49. 12. 12	47. 48. 19	46. 24. 43	45. 1.24
5		43. 38. 23							
5	α Arietis.	85. 34. 24	84. 6. 25	82. 38. 26	81.10.26	79. 42. 26	78. 14. 25	76. 46. 22	75.18.18
6		73. 50. 12	72. 22. 3	70. 53. 51	69.25.35	67. 57. 14	66. 28. 48	65. 0. 17	63.31.39
7		62. 2. 56	60. 34. 6	59. 5. 8	57.36. 3	56. 6. 50	54. 37. 28	53. 7. 57	51.38.17
8		50. 8. 28	48. 38. 30	47. 8. 22	45.38. 5	44. 7. 39	42. 37. 3	41. 6. 17	39.35.21
9		38. 4. 16							
9	Aldebaran.	70. 53. 38	69. 21. 2	67. 48. 10	66.15. 0	64. 41. 34	63. 7. 51	61. 33. 51	59.59.34
10		58. 25. 0	56. 50. 9	55. 15. 1	53.39.36	52. 3. 54	50. 27. 55	48. 51. 39	47.15. 6
11		45. 38. 16	44. 1. 10	42. 23. 48	40.46.11	39. 8. 18	37. 30. 10	35. 51. 49	34.13.17
12		32. 34. 34	30. 55. 40	29. 16. 39	27.37.34	25. 58. 28	24. 19. 24	22. 40. 25	21. 1.32
13		19. 22. 48							
13	Pollux.	61. 28. 49	59. 48. 1	58. 7. 2	56.25.52	54. 44. 31	53. 3. 2	51. 21. 27	49.39.47
14		47. 58. 2	46. 16. 14	44. 34. 26	42.52.39	41. 10. 54	39. 29. 13	37. 47. 42	36. 6.25
15		34. 25. 24	32. 44. 43	31. 4. 30	29.24.46	27. 45. 32			

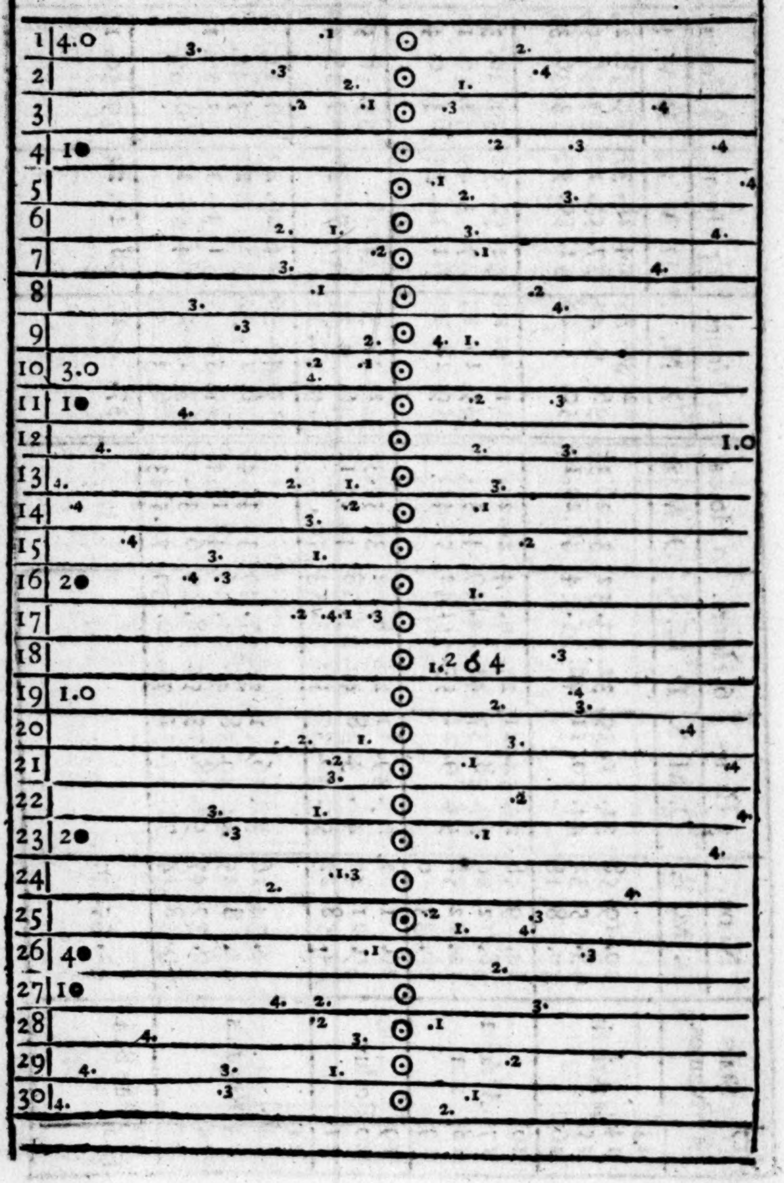
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
15	Regulus.					63. 12. 9	61. 25. 59	59. 39. 45	57.53.27
16		56. 7. 6	54. 20. 43	52. 34. 19	50.47.55	49. 1. 30	47. 15. 6	45. 28. 44	43.42.24
17		41. 56. 8	40. 9. 56	38. 23. 51	36.37.54	34. 52. 5	33. 6. 26	31. 21. 0	29.35.47
18		27. 50. 48							
18	Spica ♍	81. 21. 38	79. 34. 31	77. 47. 28	76. 0.29	74. 13. 34	72. 26. 43	70. 39. 57	68.53.15
19		67. 6. 38	65. 20. 7	63. 33. 41	61.47.21	60. 1. 7	58. 14. 59	56. 28. 57	54.43. 2
20		52. 57. 13							
17	The Sun.							120. 42. 54	119. 3.13
18		117. 23. 34	115. 43. 58	114. 4. 27	112.24.59	110. 45. 34	109. 6. 14	107. 26. 58	105.47.47
19		104. 8. 41	102. 29. 40	100. 50. 45	99.11.55	97. 33. 11	95. 54. 32	94. 16. 0	92.37.34
20		90. 59. 15	89. 21. 2	87. 42. 56	86. 4.57	84. 27. 5	82. 49. 20	81. 11. 42	79.34.12
21		77. 56. 49	76. 19. 34	74. 42. 27	73. 5.27	71. 28. 35	69. 51. 51	68. 15. 15	66.38.47
22		65. 2. 27	63. 26. 15	61. 50. 12	60.14.17	58. 38. 31	57. 2. 54	55. 27. 26	53.52. 7
23		52. 16. 57	50. 41. 56	49. 7. 4	47.32.22	45. 57. 49	44. 23. 26	42. 49. 13	41.15. 9
24		39. 41. 15							
29	α Pegasi.	82. 12. 50	80. 42. 46	79. 12. 55	77.43.19	76. 13. 56	74. 44. 47	73. 15. 52	71.47.12
30		70. 18. 47	68. 50. 37	67. 22. 42	65.55. 1	64. 27. 35	63. 0. 25	61. 33. 30	60. 6.51
D.1		58. 40. 26							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon. D. M. S.	3 Hours. D. M. S.	6 Hours. D. M. S.	9 Hours. D. M. S.	12 Hours. D. M. S.	15 Hours. D. M. S.	18 Hours. D. M. S.	21 Hours. D. M. S.
1	The Sun.	40. 21. 20	41. 47. 32	43. 13. 28	44.39. 8	46. 4. 34	47. 29. 45	48. 54. 41	50.19.23
2		51. 43. 50	53. 8. 3	54. 32. 2	55.55.49	57. 19. 23	58. 42. 45	60. 5. 55	61.28.54
3		62. 51. 42	64. 14. 20	65. 36. 48	66.59. 7	68. 21. 17	69. 43. 19	71. 5. 13	72.27. 0
4		73. 48. 40	75. 10. 14	76. 31. 43	77.53. 7	79. 14. 27	80. 35. 44	81. 56. 57	83.18. 8
5		84. 39. 17	86. 0. 24	87. 21. 29	88.42.34	90. 3. 40	91. 24. 48	92. 45. 58	94. 7.11
6		95. 28. 26	96. 49. 44	98. 11. 6	99.32.34	100. 54. 7	102. 15. 46	103. 37. 33	104.59.27
7		106. 21. 29	107. 43. 39	109. 5. 58	110.28.25	111. 51. 2	113. 13. 50	114. 36. 50	116. 0. 1
8		117. 23. 24	118. 46. 59	120. 10. 48					
5	Antares.					68. 6. 12	69. 34. 37	71. 3. 4	72.31.33
6		74. 0. 5	75. 28. 41	76. 57. 21	78.26. 6	79. 54. 57	81. 23. 54	82. 52. 58	84.22. 9
7		85. 51. 28	87. 20. 55	88. 50. 31	90.20.17	91. 50. 13	93. 20. 19	94. 50. 37	96.21. 6
8		97. 51. 47							
8	α Aquilæ.	49. 14. 16	50. 30. 1	51. 46. 31	53. 3.46	54. 21. 46	55. 40. 27	56. 59. 48	58.19.48
9		59. 40. 24	61. 1. 35	62. 23. 20	63.45.39	65. 8. 30	66. 31. 53	67. 55. 47	69.20.10
10		70. 45. 2	72. 10. 21	73. 36. 6	75. 2.17	76. 28. 54	77. 55. 56	79. 23. 23	80.51.13
11		82. 19. 26							
11	α Pegaſi.	34. 31. 36	36. 0. 17	37. 29. 53	39. 0.22	40. 31. 41	42. 3. 48	43. 36. 40	45.10.14
12		46. 44. 27	48. 19. 15	49. 54. 37	51.30.33	53. 7. 1	54. 43. 59	56. 21. 25	57.59.19
13		59. 37. 39	61. 16. 24	62. 55. 32	64.35. 2	66. 14. 53			

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
13	α Arietis.					22.39.33	24.18.37	25.58.24	27.38.52
14		29.19.58	31. 1.39	32.43.52	34.26.35	36. 9.42	37.53.10	39.36.59	41.21. 7
15		43. 5.32	44.50.11	46.35. 4	48.20.10	50. 5.28	51.50.57	53.36.35	55.22.22
16		57. 8.18							
16	Aldebaran.	24. 9.58	25.54.21	27.39. 4	29.24. 4	31. 9.21	32.54.52	34.40.34	36.26.27
17		38.12.29	39.58.37	41.44.49	43.31. 6	45.17.27	47. 3.49	48.50.11	50.36.34
18		52.22.58	54. 9.21	55.55.42	57.42. 2	59.28.20	61.14.35	63. 0.47	64.46.55
19		66.33. 0							
19	Pollux.	26. 1. 1	27.39.11	29.18. 2	30.57.31	32.37.32	34.18. 3	35.58.58	37.40.14
20		39.21.47	41. 3.28	42.45.18	44.27.18	46. 9.25	47.51.36	49.33.49	51.16. 5
21		52.58.22	54.40.39	56.22.53	58. 5. 4	59.47.12			
21	Regulus.					22.48.30	24.29.43	26.11. 5	27.52.37
22		29.34.16	31.16. 1	32.57.49	34.39.40	36.21.32	38. 3.21	39.45. 6	41.26.47
23		43. 8.25	44.49.58	46.31.26	48.12.48	49.54. 3	51.35.11	53.16.11	54.57. 3
24		56.37.47	58.18.23	59.58.50	61.39. 8	63.19.17	64.59.17	66.39. 6	68.18.45
25		69.58.14	71.37.32	73.16.39	74.55.35	76.34.19			
30	The Sun.					37. 4.19	38.27.24	39.50.19	41.13. 3
D.1		42.35.37							

Configurations of the SATELLITES of JUPITER at Six o' Clock in the Morning.



DECEMBER 1788.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	M.	
2	Tu.	
3	W.	
4	Th.	
5	F.	
6	Sa.	Nicholas.
7	*Su.*	*2d Sunday in Advent.*
8	M.	Conception of V. Mary.
9	Tu.	
10	W.	
11	Th.	
12	F.	
13	Sa.	Lucy.
14	*Su.*	*3d Sunday in Advent.*
15	M.	
16	Tu.	O Sap. Camb. T. ends.
17	W.	Oxford Term ends.
18	Th.	
19	F.	
20	Sa.	
21	*Su.*	*4th Sunday in Advent.* [*St. Thomas.*
22	M.	
23	Tu.	
24	W.	
25	Th.	*Chriſtmas-Day.*
26	F.	*St. Stephen.*
27	Sa.	*St. John.*
28	*Su.*	*1ſt Sunday after Chriſtmas.* [*Innocents.*
29	M.	
30	Tu.	
31	W.	Silveſter.

Phaſes of the Moon.

	D. H. M.
Firſt Quarter —	5. 8. 46
Full Moon —	12. 18. 22
Laſt Quarter —	19. 10. 4
New Moon —	26. 23. 31

Other Phenomena.

D.H.M.	
1.17.13	☾ β ♑
3.	♀ κ ♍ d.L. 42′.
10. 8.17	☾ δ ♈
12. 4.20	Em. of ι ♉ * 9′ N. of ☽'s cent.
18.49	Im. of ζ ♉ * 10′½ S. of ☽'s cent.
19.30¾	Em. * 6′ South.
13.	☿ ν ♏ d. L. 8′.
13.52¾	Im. of ν ♊ * 14′⅓ S. of ☽'s cent.
14.36	Em. * 11′ South.
14. 3.10	☾ ζ ♊
16. 0.49	☾ 1 ad α ♋
1.41	☾ 2 ad α ♋
5.49	☾ κ ♋
18.21.25	☾ e ♌
20.14.14	☉ enters ♑
21.	♀ 4 ad ζ ♎ d.L. 11′.
23. 2.32	☾ 1 ad ι ♎
24. 0.14	☾ δ ♏
25.13.17	☾ ☿
27.	♀ β ♏ d.L. 53′.
28.	♀ ν ♏ d.L. 13′.
29. 0.26	☾ β ♑

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. South.	Equat. of Time Sub.	Diff.
		S. D.M. S.	H. M. S.	D. M. S.	M. S.	S.
1	M.	8. 10. 3.46	16.33.41,9	21.58.59	10.16,0	23,8
2	Tu.	8. 11. 4.44	16.38. 2,3	22. 7.42	9.52,2	24,4
3	W.	8. 12. 5.42	16.42.23,3	22.15.59	9.27,8	24,9
4	Th.	8. 13. 6.41	16.46.44,8	22.23.50	9. 2,9	25,4
5	F.	8. 14. 7.40	16.51. 6,8	22.31.15	8.37,5	25,9
6	Sa.	8. 15. 8.40	16.55.29,3	22.38.13	8.11,6	26,3
7	*Su.*	8. 16. 9.41	16.59.52,3	22.44.45	7.45,3	26,7
8	M.	8. 17.10.42	17. 4.15,7	22.50.49	7.18,6	27,2
9	Tu.	8. 18.11.43	17. 8.39,5	22.56.26	6.51,4	27,6
10	W.	8. 19.12.45	17.13. 3,7	23. 1.36	6.23,8	28,0
11	Th.	8. 20.13.48	17.17.28,3	23. 6.19	5.55,8	28,3
12	F.	8. 21.14.52	17.21.53,3	23.10.35	5.27,5	28,6
13	Sa.	8. 22.15.56	17.26.18,6	23.14.23	4.58,9	29,0
14	*Su.*	8. 23.17. 1	17.30.44,2	23.17.43	4.29,9	29,2
15	M.	8. 24.18. 6	17.35.10,0	23.20.35	4. 0,7	29,4
16	Tu.	8. 25.19.12	17.39.36,0	23.22.58	3.31,3	29,6
17	W.	8. 26.20.19	17.44. 2,2	23.24.53	3. 1,7	29,8
18	Th.	8. 27.21.27	17.48.28,6	23.26.20	2.31,9	30,0
19	F.	8. 28.22.35	17.52.55,2	23.27.19	2. 1,9	30,0
20	Sa.	8. 29.23.44	17.57.21,9	23.27.50	1.31,9	30,1
21	*Su.*	9. 0.24.54	18. 1.48,7	23.27.53	1. 1,8	30,1
22	M.	9. 1.26. 5	18. 6.15,5	23.27.28	0.31,7	30,1
23	Tu.	9. 2.27.16	18.10.42,2	23.26.34	0. 1,6	30,0
24	W.	9. 3.28.28	18.15. 8,9	23.25.11	Ad28,4	30,0
25	Th.	9. 4.29.40	18.19.35,5	23.23.20	0.58,4	29,9
26	F.	9. 5.30.53	18.24. 2,0	23.21. 1	1.28,3	29,7
27	Sa.	9. 6.32. 6	18.28.28,4	23.18.14	1.58,0	29,6
28	*Su.*	9. 7.33.19	18.32.54,6	23.14.59	2.27,6	29,4
29	M.	9. 8.34.32	18.37.20,6	23.11.16	2.57,0	29,1
30	Tu.	9. 9.35.45	18.41.46,3	23. 7. 5	3.26,1	28,8
31	W.	9. 10.36.58	18.46.11,7	23. 2.26	3.54,9	

Days of the Month.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 17,2	1. 10,3	2. 32,3	9.993560	8. 7. 34
7	16. 18,0	1. 10,7	2. 32,5	9.993202	8. 7. 15
13	16. 18,5	1. 11,0	2. 32,7	9.992926	8. 6. 56
19	16. 19,0	1. 11,1	2. 32,8	9.992754	8. 6. 37
25	16. 19,2	1. 11,1	2. 32,9	9.992668	8. 6. 18

Eclipſes of the SATELLITES of JUPITER.

I. Satellite. Immerſions.

Days	H. M. S.
1	23. 23. 36
*3	17. 51. 11
*5	12. 18. 49
7	6. 46. 27
9	1. 14. 0
10	19. 41. 35
*12	14. 9. 9
*14	8. 36. 42
16	3. 4. 16
17	21. 31. 48
*19	15. 59. 20
*21	10. 26. 51
23	4. 54. 23
24	23. 21. 54
*26	17. 49. 27
*28	12. 17. 2
*30	6. 44. 34

II. Satellite. Immerſions.

Days	H. M. S.
*3	9. 41. 48
6	22. 58. 5
*10	12. 14. 23
14	1. 30. 43
*17	14. 47. 2
21	4. 3. 22
*24	17. 19. 44
*28	6. 36. 10
31	19. 52. 40

III. Satellite.

Days	H. M. S.	
*4	13. 20. 20	I.
*4	16. 44. 36	E.
*11	17. 15. 24	I.
11	20. 40. 16	E.
18	21. 10. 17	I.
19	0. 35. 44	E.
26	1. 5. 9	I.
26	4. 31. 8	E.

IV. Satellite.

Days	H. M. S.	
12	1. 54. 8	I.
12	5. 54. 36	E.
28	19. 45. 48	I.
28	23. 50. 56	E.

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Paſſage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
			MERCURY. Gr. Elong. 10^d.			
1	4. 1. 59	6. 48 N	7. 22. 7	2. 40 N	15. 45 S	22. 45
4	4. 18. 23	7. 0	7. 23. 8	2. 38	16. 1	22. 37
7	5. 3. 20	6. 41	7. 25. 18	2. 27	16. 44	22. 34
10	5. 16. 55	6. 0	7. 28. 14	2. 9	17. 41	22. 33
13	5. 29. 15	5. 6	8. 1. 42	1. 48	18. 45	22. 34
16	6. 10. 32	4. 4	8. 5. 31	1. 26	19. 51	22. 37
19	6. 20. 57	2. 57	8. 9. 36	1. 2	20. 54	22. 41
22	7. 0. 41	1. 50	8. 13. 49	0. 38	21. 51	22. 46
25	7. 9. 52	0. 44 N	8. 18. 9	0. 15 N	22. 41	22. 51
28	7. 18. 40	0. 20 S	8. 22. 35	0. 7 S	23. 22	22. 57
31	7. 27. 10	1. 23	8. 27. 5	0. 28	23. 54	23. 3
			VENUS.			
1	4. 21. 16	3. 6 N	6. 28. 4	2. 12 N	8. 45 S	21. 14
7	5. 1. 1	3. 18	7. 5. 11	2. 14	11. 9	21. 15
13	5. 10. 47	3. 23	7. 12. 21	2. 13	13. 27	21. 16
19	5. 20. 31	3. 22	7. 19. 35	2. 8	15. 36	21. 18
25	6. 0. 15	3. 16	7. 26. 52	2. 0	17. 32	21. 21
			MARS. ☌ 27^d. 17^h.			
1	8. 21. 49	1. 2 S	8. 17. 6	0. 37 S	23. 27 S	0. 30
7	8. 25. 14	1. 7	8. 21. 34	0. 40	23. 52	0. 23
13	8. 28. 40	1. 12	8. 26. 4	0. 43	24. 7	0. 16
19	9. 2. 8	1. 17	9. 0. 37	0. 46	24. 14	0. 10
25	9. 5. 39	1. 22	9. 5. 11	0. 49	24. 11	0. 3
			JUPITER.			
1	3. 21. 16	0. 17 N	3. 29. 29	0. 20 N	20. 36 N	15. 30
7	3. 21. 46	0. 18	3. 29. 7	0. 21	20. 42	15. 2
13	3. 22. 15	0. 18	3. 28. 39	0. 22	20. 48	14. 34
19	3. 22. 45	0. 19	3. 28. 5	0. 23	20. 56	14. 5
25	3. 23. 14	0. 20	3. 27. 26	0. 24	21. 5	13. 36
			SATURN.			
1	11. 10. 37	1. 53 S	11. 4. 48	1. 52 S	11. 30 S	5. 54
7	11. 10. 48	1. 53	11. 5. 5	1. 51	11. 23	5. 29
13	11. 11. 0	1. 54	11. 5. 25	1. 51	11. 15	5. 4
19	11. 11. 12	1. 54	11. 5. 49	1. 50	11. 6	4. 39
25	11. 11. 23	1. 54	11. 6. 15	1. 50	10. 56	4. 14

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	M.	9. 22.31.29	9. 28.30.59	3.43.24 N	4. 5.42 N
2	Tu.	10. 4.28.38	10. 10.25. 5	4.25.11	4.41.45
3	W.	10. 16.20.52	10. 22.16.21	4.55.16	5. 5.38
4	Th.	10. 28.12.12	11. 4. 8.53	5.12.44	5.16.31
5	F.	11. 10. 7. 7	11. 16. 7.21	5.16.55	5.13.51
6	Sa.	11. 22.10.20	11. 28.16.30	5. 7.19	4.57.16
7	*Su.*	0. 4.26.32	0. 10.40.52	4.43.42	4.26.39
8	M.	0. 17. 0. 4	0. 23.24.30	4. 6. 9	3.42.19
9	Tu.	0. 29.54.35	1. 6.30.33	3.15.16	2.45.15
10	W.	1. 13.12.37	1. 20. 0.48	2.12.30	1.37.24
11	Th.	1. 26.55. 4	2. 3.55.10	1. 0.21 N	0.21.53 N
12	F.	2. 11. 0.48	2. 18.11.23	0.17.23 S	0.56.49 S
13	Sa.	2. 25.26.22	3. 2.44.55	1.35.43	2.13.21
14	*Su.*	3. 10. 6.13	3. 17.29.18	2.48.56	3.21.53
15	M.	3. 24.53.16	4. 2.17. 8	3.51.27	4.17. 9
16	Tu.	4. 9.39.59	4. 17. 1. 1	4.38.31	4.55. 7
17	W.	4. 24.19.29	5. 1.34.44	5. 6.49	5.13.36
18	Th.	5. 8.46.18	5. 15.53.44	5.15.21	5.12.11
19	F.	5. 22.56.52	5. 29.55.28	5. 4.20	4.52. 4
20	Sa.	6. 6.49.30	6. 13.38.58	4.35.41	4.15.33
21	*Su.*	6. 20.23.59	6. 27. 4.40	3.52. 5	3.25.41
22	M.	7. 3.41.13	7. 10.13.48	2.56.48	2.25.52
23	Tu.	7. 16.42.41	7. 23. 8. 5	1.53.22	1.19.42
24	W.	7. 29.30.15	8. 5.49.22	0.45.23 S	0.10.46 S
25	Th.	8. 12. 5.40	8. 18.19.17	0.23.40 N	0.57.34 N
26	F.	8. 24.30.24	9. 0.39.11	1.30.31	2. 2.10
27	Sa.	9. 6.45.47	9. 12.50.20	2.32.11	3. 0.16
28	*Su.*	9. 18.53. 1	9. 24.53.55	3.26. 8	3.49.34
29	M.	10. 0.53.20	10. 6.51.20	4.10.19	4.28.15
30	Tu.	10. 12.48.16	10. 18.44.23	4.43.12	4.55. 3
31	W.	10. 24.39.54	11. 0.35.16	5. 3.42	5. 9. 5

DECEMBER 1788.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſsage over Merid.	☽'s Right Aſcenſ. at Noon.	☽'s Right Aſcenſ. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	M.	5	3. 7	293. 41	299. 46	17. 55 S	16. 28 S
2	Tu.	6	3. 52	305. 44	311. 34	14. 52	13. 7
3	W.	7	4. 35	317. 18	322. 58	11. 15	9. 17
4	Th.	8	5. 17	328. 34	334. 7	7. 13	5. 5
5	F.	9	5. 58	339. 39	345. 12	2. 53 S	0. 39 S
6	Sa.	10	6. 39	350. 47	356. 27	1. 36 N	3. 51 N
7	*Su.*	11	7. 22	2. 11	8. 3	6. 6	8. 19
8	M.	12	8. 7	14. 4	20. 15	10. 28	12. 32
9	Tu.	13	8. 56	26. 38	33. 14	14. 30	16. 18
10	W.	14	9. 49	40. 3	47. 6	17. 56	19. 20
11	Th.	15	10. 45	54. 22	61. 50	20. 28	21. 19
12	F.	16	11. 44	69. 29	77. 15	21. 50	22. 0
13	Sa.	17	12. 44	85. 5	92. 57	21. 48	21. 13
14	*Su.*	18	13. 44	100. 46	108. 30	20. 16	18. 59
15	M.	19	14. 42	116. 6	123. 33	17. 23	15. 30
16	Tu.	20	15. 38	130. 50	137. 57	13. 22	11. 4
17	W.	21	16. 31	144. 55	151. 43	8. 36	6. 2
18	Th.	22	17. 21	158. 25	165. 0	3. 25 N	0. 46 N
19	F.	23	18. 10	171. 31	177. 59	1. 51 S	4. 26 S
20	Sa.	24	18. 58	184. 26	190. 53	6. 56	9. 19
21	*Su.*	25	19. 47	197. 21	203. 51	11. 33	13. 38
22	M.	26	20. 37	210. 24	217. 1	15. 32	17. 13
23	Tu.	27	21. 28	223. 40	230. 23	18. 40	19. 52
24	W.	28	22. 19	237. 8	243. 53	20. 48	21. 29
25	Th.	29	23. 11	250. 39	257. 23	21. 53	22. 0
26	F.	1	☌	264. 5	270. 42	21. 51	21. 26
27	Sa.	2	0. 1	277. 14	283. 39	20. 46	19. 51
28	*Su.*	3	0. 48	289. 57	296. 7	18. 44	17. 24
29	M.	4	1. 34	302. 10	308. 6	15. 54	14. 15
30	Tu.	5	2. 18	313. 55	319. 37	12. 27	10. 32
	W	6	3. [illegible]	325. 15	330. 49	8. 32	6. 27

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon.	Semid^{r}. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	M.	14. 53	14. 51	54. 37	54. 29	5179	5190
2	Tu.	14. 49	14. 48	54. 23	54. 19	5198	5203
3	W.	14. 48	14. 48	54. 18	54. 18	5205	5205
4	Th.	14. 49	14. 50	54. 21	54. 26	5201	5194
5	F.	14. 52	14. 55	54. 35	54. 46	5182	5167
6	Sa.	14. 59	15. 4	55. 0	55. 16	5149	5128
7	*Su.*	15. 9	15. 14	55. 35	55. 56	5103	5076
8	M.	15. 20	15. 27	56. 18	56. 42	5048	5017
9	Tu.	15. 34	15. 41	57. 7	57. 33	4985	4952
10	W.	15. 48	15. 55	57. 59	58. 25	4919	4887
11	Th.	16. 2	16. 8	58. 49	59. 12	4858	4830
12	F.	16. 14	16. 19	59. 33	59. 52	4804	4781
13	Sa.	16. 23	16. 27	60. 8	60. 21	4761	4746
14	*Su.*	16. 29	16. 30	60. 30	60. 34	4735	4730
15	M.	16. 31	16. 30	60. 35	60. 32	4729	4733
16	Tu.	16. 28	16. 26	60. 26	60. 18	4740	4750
17	W.	16. 23	16. 19	60. 6	59. 53	4764	4779
18	Th.	16. 15	16. 10	59. 38	59. 21	4798	4819
19	F.	16. 6	16. 1	59. 4	58. 46	4839	4861
20	Sa.	15. 56	15. 51	58. 27	58. 8	4885	4908
21	*Su.*	15. 46	15. 41	57. 50	57. 32	4931	4953
22	M.	15. 36	15. 31	57. 15	56. 58	4975	4996
23	Tu.	15. 27	15. 23	56. 42	56. 26	5017	5037
24	W.	15. 19	15. 15	56. 11	55. 56	5056	5076
25	Th.	15. 11	15. 8	55. 42	55. 29	5094	5111
26	F.	15. 4	15. 1	55. 16	55. 5	5128	5142
27	Sa.	14. 58	14. 55	54. 54	54. 44	5157	5170
28	*Su*	14. 52	14. 50	54. 35	54. 27	5182	5193
29	M.	14. 48	14. 47	54. 20	54. 15	5202	5209
30	Tu.	14. 46	14. 45	54. 11	54. 9	5214	5217
31	W.	14. 45	14. 46	54. 9	54. 10	5217	5215

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

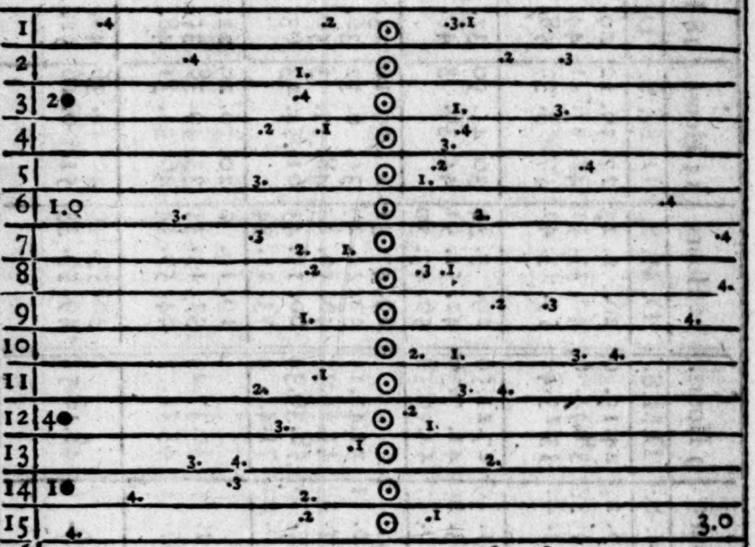
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S	D. M. S.	D. M. S.	D. M. S.
1	α Pegaſi.	58. 40. 23	57. 14. 11	55. 48. 17	54. 22. 39	52. 57. 19	51. 32. 17	50. 7. 33	48. 43. 9
2		47. 19. 3	45. 55. 17	44. 31. 52	43. 8. 48	41. 46. 4			
2	α Arietis.					83. 35. 31	82. 7. 25	80. 39. 22	79. 11. 24
3		77. 43. 29	76. 15. 37	74. 47. 46	73. 19. 57	71. 52. 8	70. 24. 18	68. 56. 27	67. 28. 35
4		66. 0. 42	64. 32. 46	63. 4. 52	61. 36. 54	60. 8. 52	58. 40. 46	57. 12. 35	55. 44. 19
5		54. 15. 59	52. 47. 34	51. 19. 3	49. 50. 26	48. 21. 43	46. 52. 53	45. 23. 55	43. 54. 49
6		42. 25. 35							
6	Aldeba-ran.	75. 19. 6	73. 48. 42	72. 18. 4	70. 47. 12	69. 16. 6	67. 44. 45	66. 13. 10	64. 41. 18
7		63. 9. 12	61. 36. 50	60. 4. 10	58. 31. 14	56. 58. 1	55. 24. 29	53. 50. 39	52. 16. 31
8		50. 42. 4	49. 7. 18	47. 32. 13	45. 56. 50	44. 21. 7	42. 45. 4	41. 8. 42	39. 32. 2
9		37. 55. 4	36. 17. 46	34. 40. 13	33. 2. 24	31. 24. 20	29. 46. 3	28. 7. 34	26. 28. 54
10		24. 50. 3							
10	Pollux..	67. 0. 49	65. 21. 0	63. 40. 50	62. 0. 19	60. 19. 28	58. 38. 18	56. 56. 51	55. 15. 7
11		53. 33. 6	51. 50. 49	50. 8. 20	48. 25. 38	46. 42. 45	44. 59. 39	43. 16. 28	41. 33. 14
12		39. 49. 56	38. 6. 33	36. 23. 21	34. 40. 19	32. 57. 30	31. 15. 0	29. 33. 0	27. 51. 28
13		26. 10. 28							

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S
13		61. 29. 39	59. 40. 39	57. 51. 30	56. 2. 10	54. 12. 42	52. 23. 8	50. 33. 29	48. 43. 46
14	Regulus.	46. 54. 0	45. 4. 11	43. 14. 24	41. 24. 39	39. 34. 55	37. 45. 14	35. 55. 43	34. 6. 22
15		32. 17. 10	30. 28. 12	28. 39. 33	26. 51. 11	25. 3. 11			
15						78. 29. 59	76. 39. 22	74. 48. 51	72. 58. 28
16		71. 8. 12	69. 18. 4	67. 28. 6	65. 38. 18	63. 48. 39	61. 59. 11	60. 9. 55	58. 20. 51
17	Spica ♍	56. 31. 59	54. 43. 21	52. 54. 56	51. 6. 45	49. 18. 48	47. 31. 5	45. 43. 37	43. 56. 24
18		42. 9. 27	40. 22. 46	38. 36. 21	36. 50. 12	35. 4. 19	33. 18. 42	31. 33. 23	29. 48. 19
19		28. 3. 34	26. 19. 7	24. 34. 58	22. 51. 8	21. 7. 36			
17		121. 52. 17	120. 11. 14	118. 30. 24	116. 49. 47	115. 9. 24	113. 29. 15	111. 49. 21	110. 9. 42
18		108. 30. 17	106. 51. 9	105. 12. 16	103. 33. 39	101. 55. 17	100. 17. 10	98. 39. 20	97. 1. 45
19		95. 24. 26	93. 47. 24	92. 10. 38	90. 34. 9	88. 57. 55	87. 21. 57	85. 46. 16	84. 10. 50
20	The Sun.	82. 35. 40	81. 0. 47	79. 26. 9	77. 51. 47	76. 17. 40	74. 43. 50	73. 10. 14	71. 36. 53
21		70. 3. 46	68. 30. 55	66. 58. 18	65. 25. 57	63. 53. 51	62. 21. 58	60. 50. 20	59. 18. 55
22		57. 47. 45	56. 16. 48	54. 46. 5	53. 15. 35	51. 45. 19	50. 15. 15	48. 45. 24	47. 15. 46
23		45. 46. 22	44. 17. 10	42. 48. 12	41. 19. 26	39. 50. 54			
28						56. 25. 8	54. 59. 20	53. 33. 47	52. 8. 31
29	α Pegasi.	50. 43. 30	49. 18. 47	47. 54. 24	46. 30. 21	45. 6. 38	43. 43. 15	42. 20. 16	40. 57. 44
30		39. 35. 37	38. 14. 0	36. 52. 55	35. 32. 24	34. 12. 26			
30						75. 22. 16	73. 54. 23	72. 26. 33	70. 58. 46
31	α Arietis.	69. 31. 1	68. 3. 18	66. 35. 36	65. 7. 56	63. 40. 17	62. 12. 39	60. 45. 0	59. 17. 20
J. 1		57. 49. 40							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.									
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D.M.S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	The Sun.	42. 35. 38	43. 58. 7	45. 20. 27	46.42.38	48. 4. 39	49. 26. 32	50. 48. 18	52. 9.58
2		53. 31. 30	54. 52. 57	56. 14. 20	57.35.38	58. 56. 51	60. 18. 2	61. 39. 9	63. 0.15
3		64. 21. 17	65. 42. 17	67. 3. 16	68.24.14	69. 45. 12	71. 6. 11	72. 27. 12	73.48.14
4		75. 9. 18	76. 30. 24	77. 51. 35	79.12.49	80. 34. 8	81. 55. 33	83. 17. 5	84.38.43
5		86. 0. 28	87. 22. 20	88. 44. 20	90. 6.30	91. 28. 49	92. 51. 19	94. 14. 0	95.36.53
6		96. 59. 58	98. 23. 15	99. 46. 46	101.10.30	102. 34. 27	103. 58. 41	105. 23. 11	106.47.57
7		108. 12. 59	109. 38. 18	111. 3. 55	112.29.50	113. 56. 4	115. 22. 37	116. 49. 30	118.16.44
8		119. 44. 19							
5	α Aquilæ.					50. 42. 49	51. 58. 26	53. 14. 44	54.31.39
6		55. 49. 13	57. 7. 24	58. 26. 9	59.45.29	61. 5. 24	62. 25. 51	63. 46. 48	65. 8.16
7		66. 30. 15	67. 52. 42	69. 15. 38	70.39. 2	72. 2. 55	73. 27. 15	74. 52. 2	76.17.15
8		77. 42. 54	79. 8. 58	80. 35. 27	82. 2.20	83. 29. 38			
8	α Pegaſi.					35. 41. 51	37. 10. 10	38. 39. 23	40. 9.28
9		41. 40. 24	43. 12. 8	44. 44. 37	46.17.50	47. 51. 48	49. 26. 24	51. 1. 39	52.37.31
10		54. 14. 1	55. 51. 5	57. 28. 42	59. 6.53	60. 45. 36	62. 24. 50	64. 4. 34	65.44.46
11		67. 25. 27							
11	α Arietis.	23. 49. 7	25. 29. 29	27. 10. 39	28.52.34	30. 35. 15	32. 18. 37	34. 2. 33	35.47. 5
12		37. 32. 11	39. 17. 44	41. 3. 42	42.50. 6	44. 36. 54	46. 24. 5	48. 11. 35	49.59.23
13		51. 47. 30							

Days.	Stars. Names	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D.M.S.	D. M. S.	D. M. S.	D. M. S.	D. M.S.
13	Aldebaran.	18. 57. 9	20. 42. 27	22. 28. 27	24.15. 6	26. 2. 23	27. 50. 12	29. 38. 25	31.27. 1
14		33. 16. 1	35. 5. 11	36. 54. 33	38.44. 6	40. 33. 51	42. 23. 41	44. 13. 35	46. 3.33
15		47. 53. 36	49. 43. 39	51. 33. 41	53.23.41	55. 13. 41	57. 3. 37	58. 53. 28	60.43.13
16		62. 32. 53							
16	Pollux	22. 22. 48	24. 1. 35	25. 41. 19	27.21.59	29. 3. 34	30. 45. 50	32. 28. 39	34.11.56
17		35. 55. 40	37. 39. 30	39. 23. 29	41. 7.36	42. 51. 51	44. 36. 3	46. 20. 13	48. 4.20
18		49. 48. 26	51. 32. 26	53. 16. 17	54.59.58	56. 43. 30			
18	Regulus.					19. 47. 31	21. 29. 16	23. 11. 11	24.53.15
19		26. 35. 28	28. 17. 45	30. 0. 1	31.42.15	33. 24. 29	35. 6. 32	36. 48. 26	38.30.12
20		40. 11. 50	41. 53. 15	43. 34. 29	45.15.32	46. 56. 24	48. 37. 3	50. 17. 30	51.57.44
21		53. 37. 46	55. 17. 35	56. 57. 11	58.36.34	60. 15. 45	61. 54. 43	63. 33. 28	65.12. 0
22		66. 50. 20	68. 28. 27	70. 6. 22	71.44. 4	73. 21. 34			
22	Spica ♍					19. 19. 2	20. 56. 29	22. 33. 45	24.10.50
23		25. 47. 44	27. 24. 28	29. 1. 0	30.37.23	32. 13. 35	33. 49. 38	35. 25. 30	37. 1.11
24		38. 36. 42	40. 12. 1	41. 47. 9	43.22. 7	44. 56. 54	46. 31. 31	48. 5. 59	49.40.17
25		51. 14. 26							
30	The Sun.					38. 53. 49	40. 14. 36	41. 35. 21	42.56. 4
31		44. 16. 46	45. 37. 27	46. 58. 9	48.18.51	49. 39. 33	51. 0. 16	52. 21. 2	53.41.49
J. 1		55. 2. 40							

Configurations of the SATELLITES of JUPITER at Eleven o' Clock at Night.

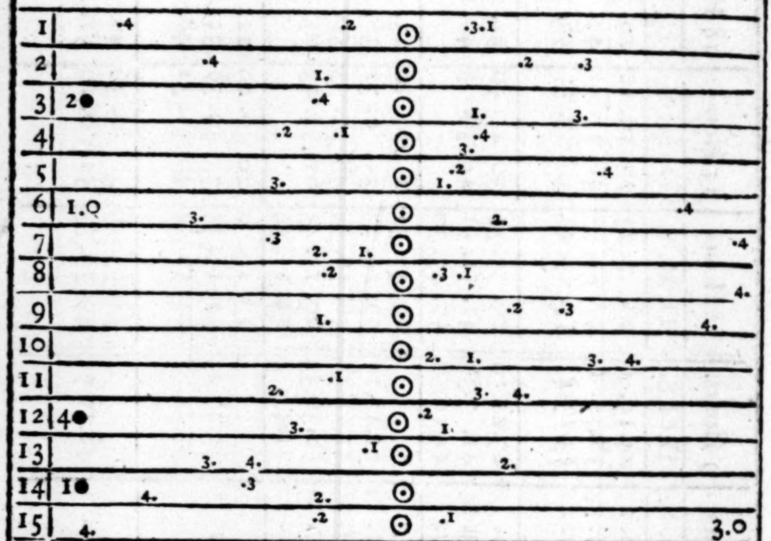


GEORGIAN PLANET.

1788.

Days	Heliocentric		Geocentric		Declin.	Paſſage Merid.
	Long.	Lat.	Long.	Lat.		
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
JANUARY.						☍ $18^d. 0^h$
1	3. 27. 58	0. 33N	3. 28. 54	0. 34N	20. 58N	13. 15
11	3. 28. 5	0. 33	3. 28. 29	0. 35	21. 3	12. 29
21	3. 28. 13	0. 33	3. 28. 2	0. 35	21. 9	11. 45
FEBRUARY.						
1	3. 28. 21	0. 33N	3. 27. 34	0. 35N	21. 14N	10. 58
11	3. 28. 28	0. 33	3. 27. 10	0. 35	21. 19	10. 16
21	3. 28. 36	0. 33	3. 26. 49	0. 35	21. 23	9. 36
MARCH.						
1	3. 28. 43	0. 33N	3. 26. 32	0. 34N	21. 26N	9. 1
11	3. 28. 50	0. 33	3. 26. 19	0. 34	21. 28	8. 23
21	3. 28. 58	0. 33	3. 26. 10	0. 34	21. 30	7. 46
APRIL.						□ $15^d. 1^h$
1	3. 29. 6	0. 33N	3. 26. 6	0. 34N	21. 30N	7. 6
11	3. 29. 14	0. 33	3. 26. 8	0. 34	21. 30	6. 30
21	3. 29. 21	0. 34	3. 26. 15	0. 33	21. 28	5. 54
MAY.						
1	3. 29. 29	0. 34N	3. 26. 28	0. 33N	21. 25N	5. 17
11	3. 29. 36	0. 34	3. 26. 46	0. 33	21. 22	4. 39
21	3. 29. 44	0. 34	3. 27. 8	0. 33	21. 17	4. 1
JUNE.						
1	3. 29. 52	0. 34N	3. 27. 36	0. 33N	21. 12N	3. 19
11	4. 0. 0	0. 34	3. 28. 6	0. 32	21. 6	2. 40
21	4. 0. 7	0. 34	3. 28. 39	0. 32	20. 59	2. 0

Configurations of the SATELLITES of JUPITER at Eleven o' Clock at Night.



GEORGIAN PLANET.

1788.

Days	Heliocentric		Geocentric		Declin.	Paſſage Merid.
	Long.	Lat.	Long.	Lat.		
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
			JANUARY.			☍ 18^{d}. 0^{h}
1	3. 27. 58	0. 33N	3. 28. 54	0. 34N	20. 58N	13. 15
11	3. 28. 5	0. 33	3. 28. 29	0. 35	21. 3	12. 29
21	3. 28. 13	0. 33	3. 28. 2	0. 35	21. 9	11. 45
			FEBRUARY.			
1	3. 28. 21	0. 33N	3. 27. 34	0. 35N	21. 14N	10. 58
11	3. 28. 28	0. 33	3. 27. 10	0. 35	21. 19	10. 16
21	3. 28. 36	0. 33	3. 26. 49	0. 35	21. 23	9. 36
			MARCH.			
1	3. 28. 43	0. 33N	3. 26. 32	0. 34N	21. 26N	9. 1
11	3. 28. 50	0. 33	3. 26. 19	0. 34	21. 28	8. 23
21	3. 28. 58	0. 33	3. 26. 10	0. 34	21. 30	7. 46
			APRIL.			□ 15^{d}. 1^{h}
1	3. 29. 6	0. 33N	3. 26. 6	0. 34N	21. 30N	7. 6
11	3. 29. 14	0. 33	3. 26. 8	0. 34	21. 30	6. 30
21	3. 29. 21	0. 34	3. 26. 15	0. 33	21. 28	5. 54
			MAY.			
1	3. 29. 29	0. 34N	3. 26. 28	0. 33N	21. 25N	5. 17
11	3. 29. 36	0. 34	3. 26. 46	0. 33	21. 22	4. 39
21	3. 29. 44	0. 34	3. 27. 8	0. 33	21. 17	4. 1
			JUNE.			
1	3. 29. 52	0. 34N	3. 27. 36	0. 33N	21. 12N	3. 19
11	4. 0. 0	0. 34	3. 28. 6	0. 32	21. 6	2. 40
21	4. 0. 7	0. 34	3. 28. 39	0. 32	20. 59	2. 0

GEORGIAN PLANET.

1788.

Days	Heliocentric Long.	Heliocentric Lat.	Geocentric Long.	Geocentric Lat.	Declin.	Paſſage Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
			JULY.			☌ $22^{d}. 8^{h}$
1	4. 0. 15	0. 34 N	3. 29. 13	0. 32 N	20. 52 N	1. 21
11	4. 0. 22	0. 34	3. 29. 49	0. 32	20. 44	0. 43
21	4. 0. 30	0. 34	4. 0. 26	0. 32	20. 36	0. 5
			AUGUST.			
1	4. 0. 38	0. 34 N	4. 1. 7	0. 32 N	20. 28 N	23. 22
11	4. 0. 46	0. 34	4. 1. 43	0. 33	20. 20	22. 46
21	4. 0. 53	0. 34	4. 2. 18	0. 33	20. 12	22. 11
			SEPTEMBER.			
1	4. 1. 2	0. 34 N	4. 2. 54	0. 33 N	20. 4 N	21. 33
11	4. 1. 9	0. 34	4. 3. 24	0. 33	19. 57	21. 0
21	4. 1. 17	0. 35	4. 3, 50	0. 34	19. 51	20. 26
			OCTOBER.			□ $27^{d}. 1^{h}$
1	4. 1. 24	0. 35 N	4. 4. 12	0. 34 N	19. 47 N	19. 51
11	4. 1. 32	0. 35	4. 4. 30	0. 34	19. 43	19. 17
21	4. 1. 40	0. 35	4. 4. 43	0. 35	19. 40	18. 39
			NOVEMBER.			
1	4. 1. 48	0. 35 N	4. 4. 52	0. 35 N	19. 38 N	17. 57
11	4. 1. 55	0. 35	4. 4. 53	0. 35	19. 38	17. 17
21	4. 2. 3	0. 35	4. 4. 49	0. 36	19. 40	16. 35
			DECEMBER.			
1	4. 2. 11	0. 35 N	4. 4. 40	0. 36 N	19. 42 N	15. 52
11	4. 2. 18	0. 35	4. 4. 26	0. 37	19. 46	15. 8
21	4. 2. 26	0. 35	4. 4. 7	0. 37	19. 51	14. 22
31	4. 2. 33	0. 35	4. 3. 45	0. 37	19. 56	13. 36

EXPLANATION and USE

OF THE

ARTICLES

CONTAINED IN THE

ASTRONOMICAL and NAUTICAL EPHEMERIS.

IT may be proper firſt to premiſe, that all the Calculations of the Ephemeris are made according to apparent Time by the Meridian of the Royal Obſervatory at Greenwich: And the Sun's, Planet's, and Moon's Places, with the Particulars depending on them in the 2d, 4th, 5th, 6th, and 7th Pages of each Month, are computed to the Inſtant of apparent Noon, or that of the Sun's Center paſſing the Meridian of Greenwich.

Apparent Time, at any Place, is that deduced immediately from the Sun, whether from the Obſervation of his paſſing the Meridian, from his Altitude obſerved at a Diſtance from the Meridian, or from his obſerved Riſing or Setting. This Time is different from that ſhewn by Clocks and Watches well regulated at Land, which is called equated or mean Time. This will be explained when we come to treat of the Equation of Time.

The Day is here ſuppoſed, according to the Method of Aſtronomers, to begin at Noon, or 12 Hours later than the civil Day of the ſame Denomination, and to be counted up to 24 Hours or the ſucceeding Noon, when the next Day begins. Thus the Day of the Month and the Hour of the Day are the ſame in this Method as in the civil Account at Noon, and from Noon till Midnight; but from Midnight till Noon they differ; for whereas in the civil Account a freſh Day is ſuppoſed to begin at Midnight, and the Hours to begin over again, in this Method the Day is ſtill continued beyond Midnight, and the Reckoning of the Hours is continued up to 24. Thus the Diſtances put down to January 10, 15 Hours belong to January 11 at Three in the Morning by civil Reckoning.

There are 12 Pages for every Month. The firſt Column of the firſt Page of each Month contains the Day of the Month; the ſecond, the Day of the Week expreſſed conciſely by the initial Letter or Letters, *Su.* ſtanding for Sunday, M. for Monday, Tu. for Tueſday, W. for Wedneſday, Th. for Thurſday, F. for Friday, and Sa. for Saturday: The third Column exhibits the Sundays and Feſtivals of the Church of England, and other remarkable Days: The laſt Column ſhews at Top the Moon's Phaſes, or the Times of New and Full Moon, and of the firſt and laſt Quarter or two Quadratures with the Sun: Beneath are contained miſcellaneous Phænomena, namely, Eclipſes of the Sun and Moon, and Occultations of Planets or fixt Stars not leſs than the fourth Magnitude, by the Moon, as they ſhould happen at Greenwich by the Tables; the Conjunctions of the Moon with all Stars not leſs than the fourth Magnitude, which can be Occultations any where on the Globe, between the Latitudes of 60° North and 40° South: The Entrance of the Sun into the ſeveral Signs, and any other remarkable Phænomena.

The Stars are expreſſed by Bayer's Characters of Reference. The Conjunction of the Moon or a Planet with a Star is denoted by prefixing the Character of the Moon or Planet to that of the Star, the Time of the Conjunction being placed immediately after. The Caſe is the ſame with reſpect to the Occultation of a Star or Planet by the Moon, only this is further diſtinguiſhed by the Addition of Im. or Immerſion, to ſignify the Diſappearance behind the Moon; and Em. or Emerſion to ſignify the Re-appearance of the ſame. Thus 8^{d}. ☽ ϑ ♑ 16^{h}. $22'$, ſignifies that the Moon will be in Conjunction with the Star ϑ ♑ on the Eighth Day at 16^{h}. $22'$, excluſive of Parallax: And 10^{d}. ☽ ε ♊ Imm. 9^{h}. $14'$. Em. 10^{h}. $23'$ ſignifies that the Moon will eclipſe ε ♊ on the 10th Day, the Immerſion being at 9^{h}. $14'$, and the Emerſion at 10^{h}. $23'$, apparent Time at Greenwich.

The

The Occultations ſet down are thoſe only viſible at Greenwich; the Circumſtances of which will commonly not differ very widely in moſt Parts of the Kingdom; but in very diſtant Places they will differ very much, owing to the Change of the Moon's Parallax, or it may become no Occultation at all: The like may be ſaid of Eclipſes of the Sun.

An Eclipſe of the Sun, or Occultation of a fixt Star by the Moon, if obſerved in a Place whoſe Latitude and Longitude are well determined, may be applied to the Correction of the Lunar Tables; but if made in a Place whoſe Latitude only is well known, may be applied to the Determination of the Longitude of the Place; but for this Purpoſe an accurate Calculation muſt be made of the Moon's Parallaxes in Longitude and Latitude, which makes this Method of ſettling the Longitudes of Places, though a very accurate one, leſs convenient in uſe for Perſons not much verſed in aſtronomical Calculations. However, this ought not to diſcourage Travellers or Mariners from endeavouring to make theſe Obſervations as often and as carefully as poſſible, when they ſhall happen to be at any Place whoſe Longitude they have Reaſon to think has not been well ſettled; ſince the neceſſary Calculations may be made at any Time afterwards by themſelves, at Leiſure, or referred to the Skill of Aſtronomers and Mathematicians.

Eclipſes of the Moon are not liable to this Inconvenience; the Longitude of any Place, where the Eclipſe has been obſerved, being deduced immediately by taking the Difference of the Time of the Obſervation and that ſet down in the Ephemeris, and converting it into Degrees, at the Rate of 15° to one Hour, *&c.* or more briefly by Table XIV. p. 38 of the 2d Edition of the Tables requiſite to be uſed with the Ephemeris. But, as the Beginning or Ending of an Eclipſe of the Moon cannot be generally obſerved nearer than One Minute, and ſometimes Two or Three Minutes of Time, the Longitudes of Places cannot be certainly determined by this Method from a ſingle Obſervation of the Beginning or End nearer than a Degree. Even this Point of Exactneſs will often be of great Service. If both the Beginning and End of the Eclipſe be obſerved, a greater Degree of Exactneſs will be attained.

The Conjunctions of the Moon with the Planets, or fixt Stars not leſs than the fourth Magnitude, which may prove Occultations in ſome inhabited Parts of the Globe, are evidently deſigned to inſtruct Mariners or Travellers to look out frequently for ſuch Obſervations; which if they happen to prove Occultations, and are carefully obſerved, will afford a certain Means of determining the Longitude of the Place of Obſervation.

The Two firſt Columns of the Second Page of the Month contain the Day of the Month and Week as before; next follow the Sun's Longitude, right Aſcenſion in Time, Declination, and the Equation of Time with its Difference from Day to Day.

The Longitude of the Sun is made uſe of in moſt of the ſucceeding Calculations of the Ephemeris, and may ſerve either to verify them, or to make other ſimilar Calculations at a different Time of the Day. Particularly it may ſerve, with the Help of the Moon's Longitude, to find the Diſtance of the Moon from the Sun at any Time, independent of the Diſtances contained in the 8th, 9th, 10th, and 11th Pages of the Month. To find the Sun's Longitude at any Time different from Noon, Proportion muſt be made according to its daily Increaſe: Saying, as 24^h. is to the Hour from Noon reckoned by the Meridian of Greenwich, ſo is the daily Variation of the Sun's Longitude, to a fourth Number; which added to the Sun's Longitude at the preceding Noon, gives the true Longitude at the given Time.

If the Time given be that of a Meridian different from Greenwich, it muſt be firſt reduced thereto, by adding or ſubſtracting the Difference of Longitude turned into Time (at the Rate of One Hour to 15°. and One Minute of Time to 15 Minutes, or more briefly by Table XIV. p. 38, of the Requiſite Tables) according as the Place is to the Weſt or to the Eaſt of Greenwich. Example: Suppoſe any one ſhould want to know the Sun's Longitude, January 19, 1767, at 4^h. 35′, being in 21°. 15′, Longitude Eaſt of Greenwich. The Difference of Longitude turned into Time is 1^h. 25′, which ſubſtracted from 4^h. 35′, becauſe the Place is Eaſt of Greenwich, leaves 3^h. 10′, for the Time reduced to the Meridian of Greenwich. The Sun's Longitude the preceding

ceding Noon is 9^{s}. 29°. 18′. 2″, and the following Noon is 10^{s}. 0°. 19′. 4″. the Difference is, 1°. 1′. 2″, or 61′. 2″, the daily Variation. Then ſay, as 24^{h}. is to 3^{h}. 10′, ſo is 61′. 2″, to 8′. 3″, which added to 9^{s}. 29°. 18′. 2″, the Sun's Longitude on the preceding Noon, gives 9^{s}. 29°. 26′. 5″, the Sun's Longitude at the Time given. In like Manner any other of the following Articles is to be found by the Help of the Ephemeris.

The Sun's Longitude ſerves alſo to compute the Aberration of the fixt Stars and Planets

The Sun's right Aſcenſion in Time is uſeful to the practical Aſtronomer in regular Obſervatories, who adjuſts his Clocks by ſidereal Time. It is alſo uſeful to him for converting apparent into ſidereal Time; as ſuppoſe that of an Eclipſe of Jupiter's Satellites, in order to know at what Time it may be expected to happen by his Clocks: For this Purpoſe the Sun's right Aſcenſion at the preceding Noon, together with the Increaſe of right Aſcenſion from Noon, muſt be added to the apparent Time of the Phænomenon ſet down in the Ephemeris.

The Sun's right Aſcenſion in Time ſerves alſo to compute the apparent Time of a known Star's paſſing the Meridian: Thus, ſubſtract the Sun's right Aſcenſion in Time at Noon from the Star's right Aſcenſion in Time, the Remainder is the apparent Time of the Star's paſſing the Meridian nearly; from which the proportional Part of the daily Increaſe of the Sun's right Aſcenſion for this apparent Time from Noon being ſubſtracted, leaves the correct Time of the Star's paſſing the Meridian.

Hence the apparent Time may be found from an obſerved Altitude of a known fixt Star, ſuppoſe one contained in Page 7, of the Requiſite Tables; as will be explained hereafter.

The Sun's right Aſcenſion in Time is alſo uſeful for computing the Time of the Moon and Planets paſſing the Meridian, as will be ſhewn under their proper Articles.

The Sun's Declination is neceſſary to find the Latitude, whether at Sea or Land, from the Meridian Altitude obſerved; it is alſo requiſite for finding the Latitude from Two Altitudes obſerved with the Interval of Time meaſured by a Watch; it ſerves for computing the Sun's Azimuth, having his Altitude and the Latitude of the Place given, in order

to

to find the Variation of the Compaſs; it is required, jointly with the Latitude of the Place and the Sun's horary Angle, to compute his Altitude, if neglected to be obſerved at the Time of taking the Moon's Diſtance from the Sun for finding the Longitude, being uſeful to facilitate the Calculation of the Effect of Refraction and Parallax upon the Diſtance; it is alſo neceſſary to calculate the apparent Time from an obſerved Altitude of the Sun at a Diſtance from the Meridian, the Latitude being given; or to compute the Time of the Sun's Setting or Riſing; which, though a leſs accurate Method than the former of obtaining the Time, may yet be uſeful when that cannot be had. For any of theſe Purpoſes the Sun's Declination muſt be found to the Time given nearly reduced to the Meridian of Greenwich, making Proportion according to the daily Increaſe or Decreaſe, in like Manner as was ſhewn with reſpect to the Sun's Longitude.

The Equation of Time is a Correction, which added to or ſubſtracted from the apparent Time (according to its Title at the Top of the Column) gives equated or mean Time, or that which ſhould be ſhown by a good Clock or Watch. Apparent Time is that which takes its Beginning from the Paſſage of the Sun's Center over the Meridian of any Place; and had the Sun no Motion in the Ecliptic, or was his Motion reduced to the Equator or in right Aſcenſion uniform, he would always return to the Meridian after equal Intervals of Time. But his apparent Motion in the Ecliptic being continually varying, and his Motion in right Aſcenſion being rendered further unequal on account of the Obliquity of the Ecliptic to the Equator, from theſe Cauſes it ariſes that the Intervals of his Return to the Meridian become unequal, and the Sun will gradually come too ſlow or too ſoon to the Meridian for an equable Motion, ſuch as that of Clocks and Watches ought to be.

This Retardation or Acceleration of the Sun's coming to the Meridian is called the Equation of Time, and is contained in the laſt Column but One of Page 2d; and when applied according to its Title to the apparent Time, or that deduced immediately from the Sun, gives the mean or equated Time, whence the Error of a Clock or Watch may be found, and, if required, it may be corrected.

If

If it be propoſed to convert mean Time into apparent, this is done by a contrary Proceſs, by applying the Equation of Time to the mean Time given, with its Title or Sign changed; *viz.* ſubſtracting inſtead of adding, and adding inſtead of ſubſtracting.

The Equation of Time being ſet down in the Ephemeris for Noon at Greenwich, Proportion muſt be made, according to the daily Difference, to find what it ſhould be at any given Time reduced to the ſame Meridian, as in the preceding Articles. The laſt Column of this Page, containing the daily Differences of the Equation, is deſigned for this Purpoſe.

As often as it may be required to make any Calculations from aſtronomical Tables, and the Time given be apparent Time; it is neceſſary firſt to apply the Equation of Time thereto to convert it into mean Time, the Tables being diſpoſed according to mean Motions. Thus the Articles contained in the Ephemeris anſwering to Noon were computed to 0^h. increaſed, or 24 Hours of the preceding Day diminiſhed, by the Equation of Time: And the Moon's Places ſet down for Midnight were computed to 12^h. increaſed or diminiſhed by the Equation of Time.

What has been ſhewn concerning the Equation of Time chiefly reſpects the Aſtronomer, the Mariner having nothing to do with it in computing his Longitude from the Moon's Diſtances from the Sun and Stars obſerved at Sea with the Help of the Ephemeris, all the Calculations thereof being adapted to apparent Time, the ſame which he will obtain by the Altitudes of the Sun or Stars in the Manner hereafter preſcribed.

But if Time-keepers ſhould be brought into Uſe at Sea, the apparent Time deduced from an Altitude of the Sun muſt be corrected by the Equation of Time, and the mean Time found compared with that ſhewn by the Watch; the Difference will be the Longitude in Time from the Meridian by which the Watch was ſet, as near as the Going of the Watch can be depended upon.

The Equation of Time is computed in the Manner explained in my Remarks upon that Subject, in the Philoſ. Tranſact.

Tranſact. Vol. liv. P. 342, for the Year 1764; namely, by taking the Difference of the Sun's true right Aſcenſion, and his mean Longitude corrected by the Equation of the Equinoxes in right Aſcenſion, and turning it into Time at the Rate of 1′. to 15′. *&c.* The Equation of Time will be additive or ſubſtractive as the Sun's true right Aſcenſion is greater or leſs than his mean Longitude.

The Semidiameter of the Sun, Page 3d, is neceſſary to reduce the obſerved Altitude of his upper or lower Limb to that of the Center; alſo to reduce the obſerved Diſtance of the Moon's neareſt Limb from the Sun's neareſt Limb to the Diſtance of the Centers. It is alſo uſeful to Aſtronomers to verify or aſcertain the Exactneſs of the Scale of their Micrometers, by Compariſon with the Meaſure of the Sun's horizontal Diameter. This Practice is particularly uſeful in ſolar Eclipſes, when the Diſtance of the Cuſps or the Verſe Sine of the uneclipſed Part has been meaſured with the Micrometer. The Semidiameters of the Sun in Mayer's Tables, on which all the Calculations reſpecting the Sun and Moon are made, ſuppoſe the Semidiameter at the mean Diſtance to be 16′. 2″, 8. which Mr. Mayer ſays he deduced from above 130 Obſervations taken with his Six Feet mural Quadrant, which ſeemed to him not ill adapted to the Purpoſe. It may not be amiſs to take this Opportunity to remark, that the Quadrant here mentioned was given to the Univerſity of Gottingen by his late Majeſty, and was made by that ingenious Artiſt the late Mr. John Bird after the Model of the Eight Feet mural Arch, which he finiſhed for the Royal Obſervatory at Greenwich, and put up there in the Year 1750. Mr. Mayer made his Obſervations with his Six Feet mural Arch, from the Year 1756, to the Time of his Deceaſe; with it he ſettled the mean Obliquity of the Ecliptic to the Beginning of the Year 1756, at 23°. 28′. 16″, which Dr. Bradley ſettled by his Obſervations, reduced to the Year 1750, at 23°. 28′. 18″. The Difference is agreeable to what ought to ariſe from the gradual Diminution of the Obliquity of the Ecliptic at the Rate of about ½ a Second in a Year. The ſame Inſtrument he alſo uſed in ſettling the Elements of his ſolar Tables; and it is moſt probable that with the ſame he ſettled his Table of Refractions at the End of his ſolar Tables; the

Agreement of this Table with Dr. Bradley's, ſee Page 1ſt of Requiſite Tables (being both ſuited to the ſame Temperature of the Air) is ſo great, that they ſeem rather like One and the ſame than Two different Tables.

The Time of the Sun's Semidiameter paſſing the Meridian, ſerves to reduce an Obſervation of a Tranſit of the preceding or ſubſequent Limb over the Meridian to that of the Center, when only One was obſerved. It ſignifies a Portion of apparent Time, or even mean Time, the Difference being abſolutely inſenſible upon ſo ſmall an Interval. It is found thus: Increaſe the Sun's Semidiameter in the Ratio of the Coſine of his Declination to the Radius, to find his Semidiameter in right Aſcenſion, which turned into Time at the Rate of 1′ to 15″. and 1″ to 15‴. gives the Time required. The Sun's Semidiameter in right Aſcenſion is readily found by adding the Log. Coſine of his Declination to the logiſtic Logarithm of his Semidiameter, the Sum is the logiſtic Logarithm of his Semidiameter in right Aſcenſion; which divided by 15 gives the Time of his Semidiameter paſſing the Meridian. If the Clock by which the Obſervation is made be regulated according to the ſidereal Time, this Quantity muſt be increaſed in the Ratio of 365 to 366, if great Preciſion is required.

From the Time of the Sun's Semidameter paſſing the Meridian may alſo be found the Time of its paſſing the horizontal or vertical Wire of a Quadrant or Sextant, which on ſome Occaſions may have its Uſe.—The hourly Motion of the Sun is uſeful in computing ſolar and lunar Eclipſes; alſo in correcting the aſſumed Longitude of the Ship, in order to find the Time from an Obſervation of the Diſtance of the Moon from the Sun, independent of the Diſtances contained in the Nautical Ephemeris; See Britiſh Mariner's Guide, P. 49, and Table at the End of the ſame, Page 25. The Logarithm of the Sun's Diſtance is uſeful in the Calculation of the Places of the Planets and Comets. The Place of the Moon's Node ſignifies its mean Longitude, and is neceſſary for finding the Equation of the equinoctial Points both in Longitude and right Aſcenſion, the Equation of the Obliquity of the Ecliptic, and the Deviations of the fixed Stars in right Aſcenſion and Declination.

The Eclipſes of Jupiter's Satellites are well known to afford the readieſt, and for general Practice the beſt Method of ſettling the Longitudes of Places at Land; and it is by their Means principally that Geography has been ſo much reformed within a Century paſt, and the Poſition of the moſt diſtant Places determined with equal Accuracy to the neareſt. It was hoped that ſome Means might be found of uſing proper Teleſcopes on Shipboard to obſerve theſe Eclipſes; and could this be effected, it would be of great Service in aſcertaining the Longitude of a Ship from time to time. In my Voyage to Barbadoes under the Direction of the Commiſſioners of Longitude, in 1763 I made a full Trial of the late Mr. Irwin's Marine Chair propoſed for this Purpoſe, but could not derive any Advantage from the Uſe of it; and, conſidering the great Power requiſite in a Teleſcope for making theſe Obſervations well, and the Violence as well as Irregularities of the Motion of a Ship, I am afraid the complete Management of a Teleſcope on Shipboard will always remain among the Deſiderata. However, I would not be underſtood to mean to diſcourage any Attempt founded upon good Principles to get over this Difficulty.

The Teleſcopes proper for obſerving the Eclipſes of Jupiter's Satellites, are common refracting Teleſcopes from 15 to 20 Feet, reflecting Teleſcopes of 18 Inches or Two Feet focal Length, and Teleſcopes of Mr. Dollond's Conſtruction with Two Object Glaſſes from 5 to 10 Feet; or, which are ſtill more convenient, thoſe of 46 Inches focal Length, conſtructed with Three Object Glaſſes, which are as manageable as reflecting Teleſcopes, and perform as much as thoſe which he makes of 10 Feet with Two Object Glaſſes.

The Eclipſes of Jupiter's Satellites are obſerved by Aſtronomers at Land, as well in order to provide Materials for improving the Theories and Tables of their Motions, as for the ſake of Compariſon with the correſponding Obſervations which may be made by Perſons in different Parts of the Globe, whereby the Longitude of ſuch Places will be accurately aſcertained. It is indeed to be lamented that Perſons, who viſit diſtant Countries, are not more diligent to multiply Obſervations of this Kind; for want of which, the Obſervations made by Aſtronomers in eſtabliſhed Obſervatories loſe Half their Uſe,

Uſe, and the Improvement of Geography is retarded. But it is to be hoped that an Emulation will ſpring up among thoſe who may have Opportunities of rendering ſo uſeful a Service to the Public, to incite them to watch diligently for the Occaſions of obſerving theſe Eclipſes carefully, particularly of the Firſt and Second, which are moſt exact for the Purpoſe. The Eclipſes, carefully calculated and ſet down in the Ephemeris, will ſerve to advertiſe them and Obſervers in general of the Times when they ſhould attend to theſe Obſervations. The Perſon, who ſhall be under any Meridian different from Greenwich, muſt turn his Difference of Longitude into Time: See Requiſite Table, P. 38, and add it to or ſubſtract it from the Time of the Eclipſe ſet down in the Ephemeris, according as he is to the Eaſt or Weſt of Greenwich, to find the apparent Time at which the Eclipſe will happen at his Meridian, nearly. He muſt further take care to regulate his Watch or Clock by apparent Time, or at leaſt to know the Difference, as well in order to apprize him of the Time to look out for the Eclipſe, as for aſcertaining the apparent Time exactly at which he ſhall obſerve it. Equal Altitudes of the Sun or Stars taken with an Aſtronomical Quadrant afford the beſt Means of regulating Clocks and Watches for occaſional Obſervations; or they may be taken with a Hadley's Quadrant, by Reflection from a Baſon of Water or Quickſilver, or from the Horizon of the Sea, if the Obſerver has an open Proſpect, and is not elevated above 5 or 6000 Feet above the Level of the Sea. But, if Opportunity does not admit of taking equal Altitudes, the Time may be determined from One Altitude taken in any of the Methods above-mentioned, at leaſt Two or Three Points of the Compaſs diſtant from the Meridian, but the nearer to the Eaſt or Weſt the better, the Latitude of the Place being known, or being found by Obſervations of the Meridian Altitude of the Sun or Stars made on Purpoſe. It will be better to take ſeveral Altitudes in order to take a Mean of the Reſults for greater Certainty. And if one Star be obſerved to the Eaſt and the other to the Weſt of the Meridian, the Time will be determined with rather more Certainty. The Manner of computing the apparent Time from the Altitude of the Sun or a Star is ſhewn in Problems VIII. and IX. Pages 25 and 26 of the Explanation and Uſe of the Requiſite Tables.

The Obſerver, being in a Place whoſe Longitude is well known, ſhould be ſettled at his Teleſcope Three Minutes before the expected Time of an Immerſion of the firſt Satellite; Six or Eight Minutes before that of the ſecond and third Satellites; and a Quarter of an Hour or more before that of the fourth Satellite; chiefly on account of the Uncertainty of their Theories; but, if the Longitude of the Place is very uncertain, he muſt begin to look out for the Eclipſe proportionably ſooner: Thus, if the Longitude of the Place is uncertain to 3 Degrees, anſwering to 12 Minutes of Time, he ought to fix himſelf to his Teleſcope 12 Minutes ſooner than is mentioned above. Nevertheleſs, when he has obſerved One Eclipſe of any Satellite, and thereby found the Error of the Tables, he may allow the ſame Correction to the Calculations of the Ephemeris for ſeveral Months, which will advertiſe him very nearly of the Time of expecting the Eclipſes of the ſame Satellite, and diſpenſe with his attending ſo long.

The Immerſions ſignify the Inſtant of the Diſappearance of the Satellite by entering into the Shadow of Jupiter; and the Emerſions ſignify the firſt Inſtant of its Appearance at coming out of the ſame. They generally happen when the Satellite is at ſome Diſtance from the Body of Jupiter, except near the Oppoſition of Jupiter to the Sun, when the Satellite approaches nearer to his Body. Before the Oppoſition of Jupiter to the Sun the Immerſions and Emerſions happen on the Weſt Side of Jupiter, and after the Oppoſition on the Eaſt Side; but, if an aſtronomical Teleſcope be uſed, which reverſes Objects, the Appearance will be directly the contrary. Before the Oppoſition, the Immerſions only of the firſt Satellite are viſible; and after the Oppoſition, the Emerſions only. The ſame is generally the Caſe with reſpect to the ſecond Satellite; both the Phænomena of the ſame Eclipſe are frequently obſervable in the Two outer Satellites. The Immerſions and Emerſions marked with an Aſteriſk in the Ephemeris are thoſe viſible at Greenwich.

To know if an Eclipſe will be viſible in any Place, find whether Jupiter be 8° above the Horizon of the Place, and the Sun as much below it. This may be done near enough by a celeſtial Globe: Otherwiſe, the Time of the Sun's Riſing and

Setting may be found for any Latitude by a Table of ſemidiurnal Arcs, contained in the popular Book called the Mariner's Compaſs Rectified, and many other Books; the Time of Jupiter's Riſing and Setting may alſo be found from the Time of his paſſing the Meridian and Declination ſet down in the Ephemeris, with the Help of the ſame Table of ſemidiurnal Arcs; adding or ſubſtracting the ſemidiurnal Arc anſwering to the ſame Declination of the Sun: Remembering always, that if Jupiter's Declination and the Latitude of the Place are of the ſame Denomination, the ſemidiurnal Arc will be more than Six Hours, and if they are of contrary Denominations, will be leſs than Six Hours. But it may be eaſier found whether the Eclipſe will be viſible at Greenwich, or whether it ſhould be properly marked with an aſteriſk, by the Tables, P. 28—31, annexed to the Nautical Almanac of 1772.

The Immerſion or Emerſion of any Satellite being carefully obſerved in any Place according to apparent Time, the Longitude from Greenwich is found immediately by taking the Difference of the Obſervation from the corresponding Time ſhewn in the Ephemeris, which muſt be turned into Degrees, &c. by Requiſite Tables, Page 38; and will be Eaſt or Weſt of Greenwich, as the Time obſerved is more or leſs than that of the Ephemeris.

Example; Suppoſe an Emerſion of the firſt Satellite ſhould be obſerved at the Cape of Good Hope, May 9, 1767, at 10^h. 46′. 45″. apparent Time: The Time by the Ephemeris being 9^h. 33′. 12″, the Difference is 1^h. 13′. 33″, whence the Longitude of the Cape ſhould be 18°. 23′. 15″, Eaſt of Greenwich, becauſe the Time ſuppoſed to be obſerved at the Cape is more than that of the Ephemeris.

It is to be obſerved that a correſpondent Obſervation of an Eclipſe of a Satellite of Jupiter, made under a well-known Meridian, is to be preferred to the Calculations of the Ephemeris for comparing with an Obſervation made in a Meridian whoſe Longitude is required; but if no correſponding Obſervation can be obtained, as is frequently the Caſe, it will be beſt to find what Correction the Calculations of the Ephemeris require by the neareſt Obſervations to the given Time that can be obtained; which Correction applied to the Calculation

culation of the given Eclipſe in the Ephemeris, renders it almoſt equivalent to an actual Obſervation.

The Longitudes and Latitudes of the Planets, Page 4, ſerve to know where to look for them in the Heavens, and when their Places may be conveniently ſettled by comparing them with fixed Stars by the Help of a Micrometer in a Teleſcope. They alſo ſhew when they are in the moſt important Points of their Orbits, where it is moſt material to obſerve them. They alſo ſerve to enable Perſons leſs ſkilled to diſtinguiſh them from the fixed Stars. Their Declinations and the apparent Times of their paſſing the Meridian are particularly uſeful to Aſtronomers who are furniſhed with Quadrants and Tranſit Inſtruments well fixed in the Meridian, in ſetting their Inſtruments for obſerving their right Aſcenſions and Declinations.

The apparent Time of a Planet's paſſing the Meridian may be computed thus; the Planet's right Aſcenſion being calculated from its Longitude and Latitude, and turned into Time, ſubſtract the Sun's right Aſcenſion at Noon in Time from it, to find the Time of the Planet's paſſing the Meridian nearly, which call T; take the Difference of the ☉ and Planet's daily Variations in right Aſcenſion in Time, if the Planet is progreſſive in right Aſcenſion, or the Sum, if it is retrogade, which call X; then ſay, by the Rule of Proportion;

As $24^{h}. \pm X : T :: X : e$ and $T \pm e$ will be the correct Time of the Planet's paſſing the Meridian. The upper Signs are to be uſed both to X and e if the Planet's progreſſive Motion in right Aſcenſion be greater than that of the Sun; in any other Caſe the lower Signs are to be made Uſe of.

But perhaps it may be found more readily by continual Approximation as follows: Take the proportional Part of the Difference or Sum of the ☉ and Planet's daily Motion in right Aſcenſion, anſwering to the Time of the Planet's paſſing the Meridian, found nearly, in Proportion to 24^{h}. and take a further like proportional Part of this proportional Part; and again of this laſt, and ſo on as far as is neceſſary. The Sum of all theſe proportional Parts added to the Time of the Planet's paſſing the Meridian found nearly, if the Planet's progreſſive Motion in right Aſcenſion is greater than that of the Sun, otherwiſe ſubſtracted, gives the apparent Time of the Planet's paſſing the Meridian.

Example: Let it be required to find the Time of the Moon's paſſing the Meridian, July 1, 1767.

The Sun's right Aſcenſion in Time July 1ſt is, $6^h. 40'. 25''$. and July 2d, $6^h. 44'. 33''$. by the Ephemeris. Therefore his daily Motion in right Aſcenſion is $4'. 8''$. The Moon's right Aſcenſion July 1ſt at Noon by the Ephemeris is $159°. 2'$. anſwering to $10^h. 36'. 8''$. of Time, and July 2d is, $169°. 39'$. anſwering to $11^h. 18'. 36''$. The Difference is, $42'. 28''$. of Time, from which $4'. 8''$. being ſubſtracted, leaves $38'. 20''$. Subſtract $6^h. 40'. 20''$. the Sun's right Aſcenſion July 1ſt at Noon, from $10^h. 36'. 8''$. the Moon's right Aſcenſion the ſame Noon, the Remainder $3^h. 55'. 43''$. is the Approximate Time of the Moon's paſſing the Meridian. The proportional Part of $38'. 20''$. anſwering to this, is $6'. 17''$. and the proportional part of $6'. 17''$. is $9''$; therefore $6'. 17''$. and $9''$. or $6'. 26''$. added to $3^h. 55'. 43''$. give $4^h. 2'. 9''$. the apparent Time of the Moon's paſſing the Meridian. In the Ephemeris it is $4^h. 2'$. It may alſo be computed by taking the Difference of the Moon's right Aſcenſion at Noon and Midnight, but then Half the Sun's daily Variation in right Aſcenſion muſt be made uſe of, and Proportion muſt be made for 12 inſtead of 24 Hours: and if the Moon paſſed the Meridian after Midnight, the Sun's right Aſcenſion at Midnight muſt be uſed, which is a Mean between his right Aſcenſions on the preceding and ſubſequent Noon. For the Planets, it will be ſufficient to take the firſt proportional Part only.

The Days of the Oppoſitions, Quadratures, &c. of the Planets to the Sun, are Times at which they ought to be obſerved in fixed Obſervatories, for ſettling the Elements of their Orbits by a Series of ſeveral Years Obſervations.

The 5th, 6th, 7th, 8th, 9th, 10th, and 11th Pages of each Month contain the Moon's Place, and all the Circumſtances relating to her Motion, and her Diſtances from the Sun and proper Stars, from which her Diſtance ſhould be obſerved for finding the Longitude at Sea. The Longitude, Latitude, and Declination of the Moon, and Time of her paſſing the Meridian, afford the like Uſes with the ſame Circumſtances of the Planetary Motions, and many more beſides. For the ſake of greater Preciſion, the Moon's Longitude, Latitude, Right Aſcenſion, Declination, Semidiameter, horizontal

horizontal Parallax, with its proportional Logarithm, are computed Twice a Day, to Noon and Midnight, and may readily be inferred to any intermediate Time with the greateſt Exactneſs.

Example: Let it be required to find the Moon's Longitude and Latitude, *&c.* July 16, 1767, at 16^h. 22′. 16″. Firſt to find the Longitude. The Moon's Longitude, July 16, at 12^h. is 0^s. 6°. 40′. 25″. and July 17 at Noon, 0^s. 13°. 47′. 48″. the Difference 7°. 7′. 23″. is the Moon's Motion in 12 Hours; ſay then, by the Rule of Proportion,

As 12^h. is to 4^h. 22′. 16″ (the exceſs of 16^h. 22′. 16″ above 12^h.) ſo is 7°. 7′. 23″. to 2°. 35′. 41″. but this muſt be corrected on account of the Moon's unequal Motion in 12 Hours, by the Table of Equation of ſecond Difference annexed to Mr. Taylor's Sexageſimal Table, P. 244—247: for this Purpoſe take out of the Ephemeris the Two Longitudes of the Moon next preceding the given Time, and the Longitudes immediately following it, and ſet them down in Order one after another, as follows;

		1ſt Diff.	2d Diff.
	s ° ′ ″	° ′ ″	′ ″
July 16, Noon	11.29.29.34		
Midnight	0. 6.40.25	7.10.51	
17, Noon	0.13.47.48	7. 7.23	3.28
Midnight	0.20.51.27	7. 3.39	3.44

Take their Differences, 7°. 10′. 51″, 7°. 7′. 23″, 7°. 3′. 39″, take the Differences of theſe Differences, or the 2d Differences 3′. 28″; 3′. 44″. and take their Mean which is 3′. 36″. Now look for the Equation of ſecond Difference, anſwering to 4^h. 22′ after Midnight, found on the Side, and 3′. 36″ at Top, which will be found = 24″, and which, according to the Remark at the Bottom of the Table, muſt be added to 2°. 35′. 41″, the firſt proportional Part, becauſe the Motion in 12 Hours or firſt Differences are decreaſing; the Sum 2°. 36′. 5″ added to 0^s. 6°. 40′. 25″, the Moon's Longitude at Midnight, gives 0^s. 9°. 16′. 30″, the Moon's true Longitude, and is as correct as the Longitudes from which it is deduced.

N. B.

N. B. If the firſt Differences of the Four Longitudes of the Moon taken out firſt increaſe and then decreaſe, or, vice verſa, firſt decreaſe and then increaſe, take Half the Difference of the Two ſecond Differences for the Mean ſecond Difference, with which take out the Equation of ſecond Difference, and add or ſubſtract it as the Firſt firſt Difference is greater or leſs than the Third firſt Difference.

To find the Moon's Latitude. Take out of the Ephemeris the Two Latitudes preceding and Two following the given Time, and ſet them down in Order, and take their firſt and ſecond Differences, and the Mean of the Two ſecond Differences; find the proportional Part of the Middle firſt Difference anſwering to the Hours and Minutes, *&c.* of the given Time after Noon or Midnight; which correct in the following Manner: Entering Table of Equation of ſecond Difference, Pag. 244—247, with the Hour from Noon or Midnight on the Side, and the Mean ſecond Difference at Top, take out the correſponding Number of Seconds, which added to or ſubſtracted from the proportional Part found above, according as the Motion in 12 Hours or firſt Difference is decreaſing or increaſing; or, more generally, according as Firſt firſt Difference is greater or leſs than Third firſt Difference, gives the proportional Part corrected; which now added to or ſubſtracted from the Moon's Latitude at the preceding Noon or Midnight, as the Latitude in theſe 12 Hours is increaſing or decreaſing, gives the Moon's Latitude correct.

Example: The Moon's Latitude is required, July 16, 16h. 22′. 16″.

	☽'s Lat. by the Ephem.	1ſt Dif.	2d Dif.	Mean of 2d Dif.
	° ′ ″	′ ″	′ ″	′ ″
July 16, Noon	4.31.10 N.	18.26		
Midnight	4.49.36	13.50	4.36	4.40
17, Noon	5. 3.26	9. 6	4.44	
Midnight	5.12.32			

The Moon's Latitude July 16 at Midnight being 4°. 49′. 36″ N. and the Motion in the next 12 Hours being 13′. 50″. ſay by Proportion, As 12h. is to 4h. 22′. 16″, ſo is 13′. 50″ to 5′. 2″: but this muſt be corrected by adding 32″, the Equation of ſecond Difference, anſwering to the Hour 4h. 22′, and the Mean ſecond Difference 4′. 40″, becauſe the firſt Differences are decreaſing, or rather becauſe the firſt of them 18′. 26″, is greater than the laſt of them 9′. 6″. therefore the proportional Part corrected is 5′. 2″ + 32″ = 5′. 34″, which added to 4°. 49′. 36″, gives 4°. 55′. 10″ N. the Moon's Latitude correct.

Remarks on ſome Circumſtances neceſſary to be attended to, in order to obtain and apply the Correction of ſecond Differences rightly in computing the Moon's Latitude

I. If the Moon's Latitude taken out of the Ephemeris for Noon and Midnight changes its Denomination from North to South or from South to North, the Sum of the Two Latitudes of contrary Denominations, where the Change happens, is to be accounted the firſt Difference in that Place.

II. If the Three firſt Differences firſt increaſe and then decreaſe, or vice verſâ, firſt decreaſe and then increaſe, Half the Difference of the Two ſecond Differences is to be taken for the Mean ſecond Difference.

III. If the Series of Four Latitudes taken out ſhould firſt increaſe and then decreaſe about the Moon's greateſt Latitudes, take the Sum of the Two firſt Differences ſtanding on each Side of the greateſt Latitude for the ſecond Difference in that Place; correct the Moon's Latitude at Noon or Midnight by the ſimple proportional Part firſt found; and to the Latitude ſo corrected, add always in this Caſe the Equation of ſecond Difference from Pag. 244—247, anſwering to the Mean ſecond Differences.

Before I quit this Subject of Interpolation by ſecond Differences, I ſhall point out another Method, by which the ſame End may be obtained more readily, and with fewer Rules, by thoſe who are well acquainted with algebraic Subſtraction and Addition, and the Manner of applying the Signs in thoſe Operations. Subſtract each Latitude from the following for the firſt Differences, to which prefix the Sign — if the Latitudes decreaſe; and ſubſtract each firſt Difference, thus found, from the following one of the ſame Order for the ſecond Differences. Half the Sum of the Two ſecond Differences

ferences ſtanding on each Side of the Interval to be interpolated, is to be accounted the mean ſecond Difference; the Equation correſponding to it by Table, Pag. 244—247, is to be applied always with the contrary Sign.

Theſe Operations are to be performed, and the Signs to be applied as in algebraic Subſtraction and Addition. Note further, if the four given Latitudes change their Denomination, call the ſecond Latitude +, and thoſe of a contrary Denomination —.

The Moon's Declination may be found at any Hour in the ſame Manner as her Latitude; but as the Correction ariſing from ſecond Differences will never exceed 2′½, this may be neglected on moſt Occaſions; but if any one is deſirous to obtain the Declination true to a Minute, the Correction is eaſily applied, as ſhewn above.

The other Articles of Page 6, and 7, *viz.* the Moon's right Aſcenſion, her Semidiameter, horizontal Parallax, with its proportional Logarithm, and the Diſtances contained in the Four laſt Pages of the Month, may be all found correctly by even Proportion, without requiring any Allowance on account of ſecond Differences. The proportional Part of the Moon's Longitude, *&c.* for any Hour may be found very readily by the Help of the Table of proportional Logarithms, Pag. 39—55 of the Requiſite Tables.

The Moon's Longitude and Latitude are uſed in computing her Diſtances from the Sun and Stars contained in the Four laſt Pages of the Month, as well as in the Appulſes to Stars pointed out in Page 1, and, jointly with her Parallax and Semidiameter, are neceſſary for computing the Eclipſes of the Sun and Moon, and the Occultations of fixt Stars and Planets by the Moon. They alſo facilitate the Calculation of the Longitude of any Place from an obſerved Eclipſe of the Sun, or Occultation of a Star or Planet by the Moon: Or, if the Meridian be well known, the Parallax and Semidiameter ſerve to deduce the Moon's true Place in the Heavens from the Obſervation, which compared with that given by the Ephemeris ſhews the Error of the Tables at the Time. The Moon's Semidiameter and Parallax are applied in correcting almoſt all Obſervations of the Moon. The proportional Logarithms of the Moon's Parallax ſerve further to facilitate the Calculations of Parallaxes.

The Moon's right Aſcenſion and Declination are uſeful to compute her Altitude at any Time, particularly at the Obſervation of her Diſtance from the Sun or a Star, ſuppoſing it was neglected to be or could not be obſerved properly; which latter Caſe may ſometimes happen in the Night, though I think but rarely; the utmoſt Accuracy therein not being required for the Calculations of Refraction and Parallax. See Britiſh Mariner's Guide, Page 57, and Requiſite Tables, P. 24. The Moon's Declination, with her Semidiameter and Parallax, ſerve for finding the Latitude by the Meridian Altitude of her upper and lower Limb obſerved at Sea. See Britiſh Mariner's Guide, Page 93, and Requiſite Tables, Page 15. The Moon's right Aſcenſion and Declination ſerve alſo to compute the Time from her Altitude obſerved at the Obſervation of her Diſtance from a Star; whence the Longitude may be inferred, tho' no Altitude of the Sun or a Star was taken for regulating the Time. See Britiſh Mariner's Guide, Page 61, and Mr. Edwards's 5th Problem annexed to the Nautical Almanac of 1781, Page 10.

The Diſtances of the Moon from the Sun and fixt Stars, contained in the 8th, 9th, 10th, and 11th Pages of the Month, are ſet down to every Three Hours of Apparent Time by the Meridian of Greenwich, and are deſigned to relieve the Mariner from the Neceſſity of a Calculation, which he might think prolix and troubleſome, and to enable him, when compared with the Diſtance obſerved carefully at Sea, to infer his Longitude readily and with little Danger of Miſtake to a Degree of Exactneſs that may be thought ſufficient for moſt nautical Purpoſes. But uſeful and valuable as the Practice of this Method may be at preſent, it is a Remark not unworthy our Notice, that every future Improvement of the Lunar Tables, as well as the Inſtruments, will bring it nearer and nearer to Perfection.

The Moon's Diſtances are computed both from the Sun and proper Stars, and generally from One Object on each Side of her, to afford the Mariner a greater Number of Opportunities of Obſervation, and a Means of attaining a greater Degree of Exactneſs. The Diſtances from the Sun are computed between 40° and 120° of Diſtance. While the Moon is between the Diſtances of 20° and 40° from the Sun, her

her Diſtance is computed only from a Star on the contrary Side that the Sun is. When ſhe is between the Diſtances of 40° and 90° from the Sun, her Diſtance is computed both from the Sun and from a Star on the contrary Side to the Sun; when the Moon is above 90° from the Sun her Diſtance is computed from Two Stars, one on each Side of her; though ſtill her Diſtance is computed alſo from the Sun from 90° to 120°. Though the Diſtance of the Moon from the Sun or Star, well obſerved with a good Inſtrument, is ſufficient to determine the Longitude, with the Help of the Ephemeris, always within a Degree, and generally much nearer, yet it will conduce to ſtill greater Accuracy, if the Obſerver takes the Diſtance of the Moon from Two Stars, or the Sun and a Star, or, when the Moon is between 90° and 120° Diſtance from the Sun, from the Sun and Two Stars, if he can be ſo lucky as to obtain theſe ſeveral Obſervations.

The Longitude being computed from the Obſervations made with each Star reſpectively, the Mean of the Reſults is to be taken as probably approaching neareſt to the true Longitude. In particular the Moon's Diſtance ſhould be taken from Two Stars, or the Sun and a Star on each Side of her, as often as Opportunity permits, ſince the Mean of the Reſults will probably be at leaſt as exact again as either ſeparately, I mean as far as depends on any Imperfection of the Inſtruments, and unavoidable ſmall Errors ariſing in the Uſe of them; Errors of theſe Kinds having a natural Tendency to correct each other; for that ſmall Error which ariſes from the Lunar Tables will affect the Reſult from either Star equally. But the Error of Mayer's laſt Lunar Tables as corrected from a Series of Dr. Bradley's Obſervations of 9 Years, by Mr. Charles Maſon in 1778, being theſe made uſe of for the Nautical Almanac of 1789, and the ſubſequent ones, probably never exceeding 30″, the Uncertainty hence ariſing in the Determination of the Longitude can ſcarcely ever exceed 17 Miles of Longitude, and generally will be much leſs.

The Diſtances ſet down in the Ephemeris; afford the Obſerver a ready Means of knowing the Star from which the Moon's Diſtance is to be obſerved; for he has nothing to do but to ſet his Quadrant to the Diſtance computed roughly from the Ephemeris, neglecting the Seconds, at the apparent

Time

Time eſtimated nearly by the Meridian of Greenwich; and direct his Sight to the Eaſt or Weſt of the Moon, according as the Diſtance at Greenwich is found in the 8th and 9th, or 10th and 11th Pages of the Month; and having found the Moon upon the little Speculum, let him give a Sweep with the Quadrant to the Right and Left, and he will find the Star he ſeeks for, if above the Horizon and the Air be clear, nearly in a Line perpendicular to the Line of the Moon's Horns or longer Axis, or, which is the ſame Thing, in the Line of the Moon's ſhorter Axis produced. The Star is always one of the brighteſt, ſo that there is little Danger of miſtaking another for it, if the preceding Directions are carefully obſerved. The Time at Greenwich is eſtimated nearly by turning the ſuppoſed Longitude from Greenwich into Time, by Requiſite Tables, Page 38, and adding it to or ſubſtracting it from the apparent Time at the Ship, as its Longitude is Weſt or Eaſt of Greenwich. It will be ſufficient if the Diſtance be computed from the Ephemeris within 10′, or 20′, for ſetting the Quadrant. The principal Uſe of the Diſtances of the Moon from the Sun and fixt Stars; namely, in determining the Longitude by Compariſon with the correſponding Diſtances obſerved at Sea, is ſhewn in Problem XI. Page 37 of Requiſite Tables.

The Diſtances contained in the Ephemeris were computed ſtrictly to Noon and Midnight, and thence interpolated for every Three Hours, according to the Method ſhewn for computing the Moon's Latitude, Page 161—163; except that the Correction of ſecond Differences at the Middle of the Interval to be interpolated, was taken $\frac{1}{8}$ of the Mean of the Two ſecond Differences, and at the Firſt and Third Quarter of the Interval was taken $\frac{3}{4}$ of the Correction juſt found at the Middle of the Interval; inſtead of conſulting Mr. Taylor's Table, Pag. 248 and 249, which would however have given the ſame Reſult. But, at the firſt 12 Hours, when the Diſtances of the Moon from a Star begin, and the laſt 12 Hours, when the Diſtances end, there being only One ſecond Difference inſtead of Two ſecond Differences on each Side to take a Mean of, this Method fails in theſe Caſes, and therefore the following is to be ſubſtituted in its Stead, being derived from Sir Iſaac Newton's Solution of the Problem of drawing

drawing a Curve through the Extremities of any Number of given Ordinates. Phil. Nat. Princ. Math. Page 486. Edit. Londini 1726, or Dr. Horſley's complete Edition of Sir Iſaac Newton's Works, Vol. 3d. Page 128.

From Four Diſtances at Noon and Midnight computed ſtrictly to interpolate Three Diſtances at the 3d, 6th, and 9th Hour of the firſt or laſt Interval.

Subſtract each Diſtance from the following, for the firſt Difference, and prefix the Sign —, if the Diſtances decreaſe. Subſtract each firſt Difference thus found from the following One of the ſame Order, for the ſecond Difference: And in like Manner ſubſtract the Firſt ſecond Difference from the following for the third Difference; applying the Signs as in algebraic Subſtraction. Denote the firſt or laſt firſt Difference by *b*; the firſt or laſt ſecond Difference by *c*, according as the Interpolation to be made is for the firſt or laſt 12 Hours; denote alſo the third Difference by *d*; and, *a* being put to ſignify the Diſtance at the Beginning of the Interval, the interpolated Diſtances will be as follows:

At 3d Hour of firſt Interval $a + \frac{1}{4} b - \frac{3}{32} c + \frac{7}{128} d$
At 6th Hour of firſt Interval $a + \frac{1}{2} b - \frac{1}{8} c + \frac{1}{16} d$
At 9th Hour of firſt Interval $a + \frac{3}{4} b - \frac{3}{32} c + \frac{5}{128} d$
Or
At 3d Hour of laſt Interval $a + \frac{1}{4} b - \frac{3}{32} c - \frac{5}{128} d$
At 6th Hour of laſt Interval $a + \frac{1}{2} b - \frac{1}{8} c - \frac{1}{16} d$
At 9th Hour of laſt Interval $a + \frac{3}{4} b - \frac{3}{32} c - \frac{7}{128} d$

In adapting theſe Formulæ to Numbers, great Care muſt be taken about the right Application of the Signs. Thus if *b*, *c* or *d* is Negative, apply the Number expreſſing the Value of that Term of the Formula where it is found with a contrary Sign to that of the Formula.

Let me add in this Place, that if in filling up the firſt and laſt Intervals, a new ſecond Difference has been ſuppoſed in arithmetical Progreſſion with the Two given ones, in order to take a Mean between it and the firſt or laſt ſecond Difference, the Interpolation at the Middle of the Interval or 6th Hour will be had true, the ſame as if the above Formulæ had been uſed: But at the Interpolation of the firſt and third Quarter there will be an Error of $\frac{1}{128}$ third Difference; which will be corrected, by appyling $+\frac{1}{128}d$ or third Difference, to Number found at the firſt Quarter of the Interval, and $-\frac{1}{128}d$ to that found at the third Quarter of the Interval; equally the ſame whether it be the firſt or laſt Interval.

The Configurations of Jupiter's Satellites, Page 12th and laſt, exhibit the apparent Poſitions of the Satellites with reſpect to each other, and to Jupiter at ſuch an Hour of the Evening or Night as they are moſt likely to be obſerved, and ſerve to diſtinguiſh the Satellites from one another. Jupiter is diſtinguiſhed by the Mark ⊙, and the Satellites by Points with Figures annexed, the Figure 1 ſignifying the firſt Satellite, 2 the ſecond Satellite, *&c.* When the Satellite is approaching towards Jupiter, the Figure is put between Jupiter and the Point; and when the Satellite is receding from Jupiter, the Figure is put on the other Side of the Point. The Satellites are in the ſuperior Parts of their Orbits, or furtheſt from the Earth, when they are marked to the right Hand or Weſt of Jupiter approaching him; or to the left Hand or Eaſt of Jupiter receding from him; but are in the inferior Part of their Orbits, or neareſt to the Earth, when they are marked to the right Hand or Weſt of Jupiter receding from him, or to the left or Eaſt of Jupiter approaching him. The Cypher o, ſometimes annexed to the Figure of the Satellite towards the Margin, ſignifies that it is inviſible on the Face of Jupiter; and the black Mark ●, ſignifies that it is inviſible, being eclipſed in Jupiter's Shadow, or behind Jupiter eclipſed by his Body.

THE END.

A

DESCRIPTION

OF AN

ACCURATE AND SIMPLE METHOD

OF ADJUSTING

HADLEY'S QUADRANT

FOR THE

BACK OBSERVATION.

BY

MR. ROBERT BLAIR.

Publiſhed by ORDER of the
COMMISSIONERS OF LONGITUDE.

A DESCRIPTION of an accurate and ſimple Method of adjuſting HADLEY's *Quadrant for the back Obſervation. By Mr.* ROBERT BLAIR.

TO adjuſt HADLEY's Quadrant for the back Obſervation by the Method propoſed, no additional Apparatus is neceſſary. All that is required is to poliſh the lower Edge of the Index-glaſs, and expoſe it to View. The back Horizon-glaſs is adjuſted by means of a Reflexion from this poliſhed Edge, in the very ſame Manner as the fore Horizon-glaſs is adjuſted by the common Method.

To thoſe who are acquainted with the Theory of the Quadrant, very little more need be ſaid on the Subject. They will immediately perceive, that in the ſame Manner as the fore Horizon-glaſs can at any time be placed parallel with the reflecting Surface of the Index-glaſs, by bringing the Image of a diſtant Object, after Reflexion from theſe Two Surfaces, to coincide with the Object itſelf ſeen directly; ſo alſo may the back Horizon-glaſs be placed parallel with the poliſhed reflecting Edge of the Index-glaſs, by a ſimilar Operation; and that, as the poliſhed Surface of this Edge is at Right-angles to the ſilvered Surface of the Index-glaſs, the reflecting Surface of the back Horizon-glaſs muſt be ſo likewiſe. That is, the Quadrant will

then

then be adjuſted for the back Obſervation. For the Adjuſtment of the back Horizon-glaſs conſiſts in placing it perpendicular to the Index-glaſs, when the Index is at 0, and alſo perpendicular to the Plane of the Quadrant; both of which Points are obtained by this Operation; provided the reflecting Edge is perpendicular to the Plane of the Quadrant. It is the Buſineſs of the Inſtrument-maker to give this Edge the true Poſition, as well as the ſilvered Surface, at the Firſt Conſtruction; after which, it has been uſual to take it for granted, that they will never alter. And it may be remarked, that the Edge is the leaſt liable of the two to any Alteration of Poſition from Accidents.

It would ſeem, however, an Advantage gained to the Inſtrument, if, in the little Pamphlet, which generally accompanies the Sale of this Inſtrument, ſome ready Method were pointed out, by which the Obſerver might, at any time, ſatisfy himſelf of the Truth of this Matter in both Caſes.

A clearer Idea of what has been ſaid above will, perhaps, be obtained by caſting the Eye on Fig. I. where R I H E repreſents a Pencil of Rays emitted from the Object R, incident on the Index-glaſs I, from which it is reflected to the fore Horizon-glaſs H, and thence to the Eye at E. By this double Reflexion an Image of the Object is formed at *r*. R H E repreſents another Pencil from the ſame Object R, coming directly through the fore Horizon-glaſs to the Eye at E. So that the doubly reflected Image *r*, appears coincident with the Object R itſelf, ſeen directly.

When this Coincidence is perfect, and the Object R ſo very diſtant as to make the Angle I R H

inſenſible,

inſenſible, the Poſition of the Speculums I and H will differ inſenſibly from Paralleliſm; that is, the Quadrant will be adjuſted for the fore Obſervation. Now it is from the Eaſe and Accuracy, with which this Adjuſtment can at any time be made, that the fore Obſervation derives its Superiority over the back Obſervation. But by grinding the Edge of the Index-glaſs perpendicular to its reflecting Surface, and poliſhing it, the back Horizon-glaſs is rendered capable of an Adjuſtment equally eaſy and accurate as the fore Horizon-glaſs. For by a Pencil of Rays emitted from the Object S, incident on the reflecting Edge of the Index-glaſs D, thence reflected to the back Horizon-glaſs B, and from that to the Eye at *e*, an Image is formed at *s*; which Image being made to coincide with the Object S itſelf, ſeen directly, aſcertains the Poſition of the back Horizon-glaſs, relative to the Index-glaſs, with the ſame Preciſion, and in a Manner equally direct, as the former Operation does that of the fore Horizon-glaſs.

One of the firſt Difficulties that occurred, in perfecting this Method of adjuſting the back Horizon-glaſs, was to grind the Surface of the reflecting Edge accurately perpendicular to the ſilvered Surface; but by uſing a Method ſomewhat ſimilar to that by which the Two Surfaces of a Plate of Glaſs can be ground ſo nearly parallel as to make the Error inſenſible, an equal Degree of Accuracy may be obtained in grinding ſuch Surfaces perpendicular. And even if this had not been the Caſe, the propoſed Method of Adjuſtment would be very little affected by any Error committed in this Reſpect. For there are ſeveral Ways of finding

ing any Deviation from the perpendicular Poſition, to the greateſt Nicety. And this once found, it is only neceſſary to make a Mark on the Arch of Exceſs, where the Index is to be placed, at the time of adjuſting, inſtead of placing it at O.

Another Objection, which, it was feared, would not have been ſo eaſily ſurmounted, aroſe from the ſmall Extent of the Field of View; which is neceſſarily limited by the Thickneſs of the Index-glaſs. But by properly proportioning the Thickneſs of the back Horizon-glaſs to that of the Index-glaſs; ſo as to take Advantage of the Reflexion from both Surfaces of the former, ſuch an Increaſe of Field is obtained, either in obſerving with the naked Eye, or a Teleſcope, but eſpecially in the latter Caſe, as to render it unneceſſary to have Recourſe to any leſs ſimple Method of enlarging it.

It was alſo apprehended, that the Quantity of Light reflected from this poliſhed Edge might, in ſome Caſes, be inſufficient to make the reflected Image ſufficiently perceptible; but by conforming to the practical Directions for adjuſting, which are ſubjoined, no Inconvenience will be felt from this Cauſe.

Directions for adjuſting the back Horizon-glaſs.

THE Method of adjuſting the Quadrant for the back Obſervation is this. If it is to be done without making Uſe of the Teleſcope, place the Index at O, and applying the Eye to the Hole in the Sight-vane*, or Tube for directing the Sight, direct

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* Beſides the Two Holes in the Sight-vane commonly made, there muſt be a Third nearer to the Horizon-glaſs, and ſo placed that an Eye directed through it to the Center of

direct it through the back Horizon-glaſs, to the Horizon; if that is the Object to be uſed for adjuſting. The Two Horizons are then to be made to coincide, holding the Quadrant firſt in a vertical, and then in an horizontal Poſition; by which means both Adjuſtments will be effected as in the fore Obſervation.

There will be no Difficulty in finding the reflected Horizon, if the Obſerver firſt directs his Eye to that Part of the Horizon-glaſs, where he obſerves the Image of the poliſhed Edge of the Index-glaſs; which will appear double. When the direct Horizon is made to appear in this Space, the reflected one will be ſeen cloſe by it, unleſs the Inſtrument wants a great Adjuſtment; in this Caſe a little Motion of the back Horizon-glaſs backwards and forwards, will preſently bring it in View.

When the Horizon, or any obſcure terreſtrial Object, is to be made Uſe of for adjuſting by means of the reflecting Edge, there is a Precaution to be taken, without which, the Obſerver will ſometimes meet with, what will appear an unaccountable Difficulty. For if the Sky, or other Object behind him, ſhould happen to be pretty bright, he will not be able to diſcern the Horizon at all. This ariſes from the Image of the Object behind him, which is reflected from the ſilvered Surface of the Index-glaſs, appearing to coincide with the Horizon; in which Caſe, the bright Pic-

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of the Horizon-glaſs, ſhall there perceive the Image of the poliſhed Edge of the Index-glaſs. This Hole muſt not be made ſmall like the others, but equal to the ordinary Size of the Pupil of the Eye; there being, on ſome Occaſions, no Light to ſpare.

ture of the former, which is formed in the Bottom of the Eye, prevents the fainter Impreſſion of the latter from being perceived.

This will be avoided, either by applying a black Screen over the ſilvered Surface of the Index-glaſs; or, without being at this Trouble, by ſtanding at a Door or Window, ſo that only the dark Objects within can be reflected from the Index-glaſs. But if the Obſervation is to be made in the open Air, a Hat, or any ſuch dark Obſtacle, held before the ſilvered Surface of the Index-glaſs, will very effectually remove this Inconvenience.

Some ſuch Precaution muſt alſo be taken, when a Teleſcope is made Uſe of. And, moreover, the Teleſcope muſt be brought ſo near to the Plane of the Quadrant, that the greateſt Part of its Aperture ſhall be oppoſed to the ſilvered Half of the Horizon-glaſs; ſo as to make the direct and reflected Horizons of equal Brightneſs.

If the Teleſcope is to be uſed in adjuſting, the firſt thing to be done, after fixing it for the back Obſervation, is to alter the Direction of its Axis, from the Center of the Index-glaſs to the Edge. The Teleſcope is ſo contrived, as to admit of the ſmall Degree of Motion, which is neceſſary for this Purpoſe. If this is omitted, the Field will be more contracted than otherwiſe; and the reflected Object will always appear on one Side of the Field of the Teleſcope.

The Sun has been found to be the beſt Object for adjuſting the Quadrant accurately. The Method of doing this for the fore Obſervation, by firſt bringing the two Suns into one, whereby both Adjuſtments are effected at once, and then meaſuring

ſuring the Sun's Diameter twice, by which greater Accuracy will be obtained in the principal Adjuſtment, which has been deſcribed by the Aſtronomer Royal in the Requiſite Tables, is ſo applicable to the preſent Method of adjuſting the back Horizon-glaſs, as to make a Repetition of it unneceſſary.

One thing only, it may not be improper juſt to take Notice of. The beſt Obſervers, inſtead of making the principal Adjuſtment, place the Speculums parallel by moving the Index, without altering the Poſition of the Horizon-glaſs. This will be found preferable to the common Method both for Eaſe and Accuracy; and beſides, poſſeſſes a very material Advantage in admitting a more ſimple Conſtruction of the Inſtrument. For the complex Apparatus intended for making the principal Adjuſtment of the Horizon-glaſſes is thereby rendered unneceſſary.

If this Method is adopted, it will generally be found on examining the Poſition of the Index, after having placed the Speculums parallel, that it does not point to the Beginning of the Arch; ſo that it becomes neceſſary to allow for what has been called the Index-error.

Now it is to be remarked, that in adjuſting the back Horizon-glaſs, this Index-error is to be allowed for contrariwiſe from the Index-error in the fore Obſervation. Thus if the Index-error is on the Arch of Exceſs, it is to be added to all Angles meaſured by the fore Obſervation, and ſubtracted from all Angles meaſured by the back Obſervation; and, *vice verſa*, if this Index-error is on the proper Arch of the Quadrant. Or it will amount to the ſame thing if the Index-error is allowed for the ſame

Way in both Caſes, provided that you add or ſubtract it, in the back Obſervation, to the Angle marked by the Index, before ſubtracting this Angle from 180°, to find its Supplement, which is the required angular Diſtance of the Objects *.

Of

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* Though rather foreign to the Intention of this paper, it may not be amiſs to take Notice of a Source of Error in obſerving by HADLEY's Quadrant, which, there is Reaſon to apprehend, is not ſo generally known, and attended to, as it ought to be.

The Errors here meant are thoſe which ariſe from the Bending and Elaſticity of the Index, and the Reſiſtance which it meets with in turning round its Center; whence the Extremity of the Index, on being puſhed along the Arc, will advance ſenſibly, before the Index-glaſs begins to move: and may be ſeen to recoil, when the Force acting on it is removed. Mr. HADLEY ſeems to have been apprehenſive that his Inſtrument would be liable to Errors from this Cauſe; and, in order to avoid them, gives particular Directions that the Index be made broad at the End next the Center, and that the Center, or Axis itſelf, have as eaſy a Motion as is conſiſtent with Steadineſs; that is, an entire Freedom from Looſeneſs, or *Shake*, as the Workmen term it. By ſtrictly complying with theſe Directions the Error in queſtion may indeed be greatly diminiſhed; ſo far, perhaps, as to render it nearly inſenſible, where the Index is made ſtrong, and the proper Medium between the two Extremes of a *Shake* at the Center on one Hand, and too much Stiffneſs there on the other, is nicely hit; but it cannot be entirely corrected. For to more or leſs of bending the Index will always be ſubject: and ſome Degree of Reſiſtance will remain at the Center, unleſs the Friction there could be totally removed; which is impoſſible.

Of the Reality of the Error to which he is liable from this Cauſe, the Obſerver, if he is provided with a Quadrant furniſhed with a Screw for moving the Index gradually, may thus ſatisfy himſelf. After finiſhing the Obſervation lay the Quadrant on a Table, and note the Angle; then cautiouſly looſen the Screw which faſtens the Index, and it will immediately, if the Quadrant is not remarkably well conſtructed,

be

Of a Correction neceſſary in finding the angular Diſtance of near Objects.

AS the Uſe of HADLEY's Quadrant is not confined to aſtronomical Obſervations, but may alſo be extended to determining the angular Diſtance of near Objects in taking Surveys; it becomes

be ſeen to ſtart from its former Situation; more or leſs according to the Perfection of the Joint, and the Strength of the Index. This Starting, which is owing to the Index recoiling after being releaſed from the confined State it was in during the Obſervation, will ſometimes amount to ſeveral Minutes; and its Direction will be oppoſite to that, in which the Index was moved by the Screw at the time of finiſhing the Obſervation. But how far it affects the Truth of the Obſervation, depends on the Manner in which the Index was moved in ſetting it to o for adjuſting the Inſtrument; or in finiſhing the Obſervations neceſſary for finding the Index-error.

This will, perhaps, be beſt underſtood by ſtating a Caſe in which the Error of the Obſervation ariſing from this Cauſe will amount to the greateſt poſſible. Suppoſe, then, Two Obſervers with Inſtruments equally good, to have made the following Obſervations. One in ſetting the Index of his Quadrant at o, in order to adjuſt it, happens to move it in a retrograde Direction. He then obſerves the angular Diſtance of Two Objects, and finiſhes the Obſervation with an advanced Motion of the Index. The other Obſerver, on the contrary, in adjuſting ſets the Index of his Quadrant to o by advancing it, and finiſhes his Obſervation of the angular Diſtance of the ſame Objects by a retrograde Motion of the Index. Now if the Index did not admit of the leaſt Bending, this Difference of Circumſtances would nowiſe affect the Reſult of the Obſervations. But on account of this Bending, the former of theſe Obſervations will be found to exceed, and the latter to fall ſhort of the true angular Diſtance of the Objects, by twice the Quantity which the Index was obſerved to ſtart upon the Arch, when the faſtening Screw was looſened.

A little Conſideration will make it evident, that this Difference proceeds from the Index being bent in a contrary comes neceſſary, in this Caſe, where Accuracy is deſired, to determine the Point of the Inſtrument from which ſuch angular Diſtance is to be eſtimated. For when Mention is made of the angular Diſtance of Two Objects, or Points; the Idea communicated is imperfect, unleſs ſome Third Point

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Direction in obſerving from what it was in adjuſting; which oppoſite Bending tends in one Caſe to increaſe and in the other to diminiſh the Angle meaſured.

The general Nature of theſe Errors being thus explained, and their Cauſe appearing to be inſeparable from the Materials and Mode of Conſtruction of the Inſtrument, it only remains to point out the beſt and eaſieſt practical Rule for ſhunning them, which ſeems to be this. In all Obſervations made by HADLEY's Quadrant, let the Obſerver take Notice conſtantly to finiſh his Obſervations, by moving the Index in the ſame Direction, which was uſed in ſetting it to 0 for adjuſting; or in the Obſervations neceſſary for finding the Index-error.

If this Rule is obſerved, the Error ariſing from the Spring of the Index will be obviated. For as the Index was bent the ſame Way, and in the ſame Degree in adjuſting as in obſerving, the Truth of the Obſervations will not be affected by this Bending. As to the Direction itſelf, in which the Index is to be moved both in adjuſting and obſerving, the Obſerver is at Liberty to chuſe; but as the common and moſt convenient Practice in obſerving is to finiſh the Obſervations by a Motion of the Index in that Direction which increaſes the Angle; that is, from 0 towards 90 in the fore Obſervation, and from 90 towards 0 in the back Obſervation; it would, perhaps, be better, if the Obſerver were to adopt it as a general Rule in all Obſervations, of whatever Kind, made by HADLEY's Quadrant, to finiſh the Motion of the Index by puſhing it from him; or turning the Screw in that Direction which carries it farther from him. What is meant by finiſhing the Motion of the Index, in any Direction, is, that the laſt Motion communicated to the Index ſhall have been, for ſome Minutes at leaſt, in the Direction required.

Theſe Errors ariſing from the above-mentioned Imperfection of Quadrants, which have greatly perplexed and embarraſſed Obſervers unacquainted with them, were long ago detected by an Officer of diſtinguiſhed Rank and Character in his

Point is alſo expreſſed, from which this angular Diſtance is to be eſtimated.

Accordingly the Aſtronomer Royal, with his accuſtomed Zeal and Ability in promoting the Intereſts of Science, has, amongſt other uſeful Improvements, given us Directions, in a Paper annexed to the NAUTICAL EPHEMERIS for 1774, how to proceed in ſuch Caſes, both in the fore and back Obſervation. But as the Method here deſcribed of poliſhing the Edge of the Index-glaſs, hath been found to afford an eaſier, and more accurate Method of adjuſting the Inſtrument for the back Obſervation, than any then in Uſe, it becomes neceſſary to explain this Matter a little farther. In order to this, there muſt be premiſed by way of Lemma, a Theorem, the Demonſtration of which, as being eaſily deducible from the well-known optical Axiom, that the Angle of Reflexion is equal to the Angle of Incidence, may be here omitted.

LEMMA.

A RAY of Light after Reflexion from Two plain parallel Surfaces, proceeds parallel to the incident Ray; and if the Two plain reflecting Surfaces are inclined, a Ray of Light incident perpendicular to their common Interſection, will, after Reflexion, form with the incident Ray produced, an Angle, double of that, in which the ſaid Surfaces are inclined; or of its Supplement, if it exceeds a Right-angle.

his Majeſty's naval Service, and well known in the ſcientific World, who alſo inveſtigated their Cauſe and adopted the proper Method of obviating them. At his Deſire an Account of them is now laid before the Public, as a neceſſary Caution both to the Obſerver and Inſtrument-maker.

Hence it appears, that if the Speculums have been adjuſted parallel when the Index is at O; and afterwards by moving it forwards upon the Arch, the Image of any Object as S (Fig. II.) be made to coincide with any other Object ſeen directly as N; the angular Diſtance of theſe two Objects is equal to twice the Angle in which the Speculums are inclined to one another, which, from the Conſtruction of the Inſtrument, is equal to the Angle ſhown by the Index; ſuch angular Diſtance being eſtimated from the Point P, where the incident Ray S I produced, interſects the doubly reflected Ray H P.

And this holds true in Angles of all Magnitudes, and in Objects ſituated at what Diſtance ſoever. But there is an Objection to eſtimating the Angles from the Point P, becauſe its Situation is variable according to the Magnitude of the Angle meaſured, and lies in ſome Caſes on oppoſite Sides of the Inſtrument, and even at a Diſtance from it.

It is, therefore, required to determine the angular Diſtance when eſtimated from ſome fixed Point, as I the Center of the Index-glaſs. In order to accompliſh this, it becomes neceſſary to add to the Angle marked by the Index, the Angle I N H, which I H, the Diſtance between the Centers of the Speculums, ſubtends at the direct Object N.

This Angle I N H, therefore, muſt next be found: And it will be obtained if, when the Speculums are parallel and the Index at O, the Obſerver looking at the direct Object N, by a ſmall retrograde Motion of the Index, brings its doubly reflected Image, which then appears at *n*, to coincide with it. The Angle marked by the Index on the Arch of Exceſs is that required. For it is

equal

equal to the Angle which N I, the incident Ray, forms with H E, the doubly reflected Ray, produced to their Point of Interſection N, which in this Caſe coincides with the direct Object.

Theſe two Angles S P N and I N H, being thus found, their Sum is the Angle ſought; for it is equal to N I S, the Angle which the Objects S and N ſubtend at I, the Center of the Index-glaſs. *Euclid* I. 32.

This will ſuffice to point out the Correction, which it is neceſſary to make in the fore Obſervation, when the Inſtrument is applied to meaſuring the angular Diſtance of near Objects. It is intended to introduce and explain a Correction of the ſame Kind, but more conſiderable, which it is neceſſary to make in the back Obſervation; and which may be obtained, by means of the reflecting Edge, with the ſame Eaſe and Accuracy.

When the doubly reflected Image of any Object S (Fig. III.) is made to coincide with any other Object N ſeen directly through the back Horizon-glaſs, the Speculums having previouſly been adjuſted perpendicular with the Index at O, the Angle marked by the Index is S P E, which the incident Ray S I produced, forms with the doubly reflected Ray H E produced, and S P N, the Supplement of this Angle, is the angular Diſtance of the Objects, eſtimated from the Point P; whether they be near, or remote. But this Point being moveable, as in the fore Obſervation, the angular Diſtance of the Objects is required, when eſtimated from I, the Center of the Index-glaſs. In order to obtain this, the Angle I N H, which the Diſtance between the Speculums ſubtends at the direct Object, muſt be added to the former.

Next,

Next, therefore, it becomes neceſſary to determine this Angle. The moſt direct Method of obtaining it, would be by turning round the back Horizon-glaſs, placing it parallel with the Index-glaſs, and then finding the Angle I N H as directed in the fore Obſervation. But beſides that the back Horizon-glaſs is not in general, and ought not to be made capable of being turned round; this Method would, in ſeveral Reſpects, be attended with Trouble and Inconvenience; which will be ſaved by making Uſe of the poliſhed Edge. For when this Edge is placed parallel with the back Horizon-glaſs, an Image of the Object N will be formed at *n*; which by a ſmall Motion of the Index may be made to coincide with N. When this is effected the Angle marked by the Index is D N H, which N D, the incident Ray, forms with H E the doubly reflected Ray produced to their Point of Interſection N. Now though it is true that the Angle D N H, thus found, falls ſhort of I N H, the Angle required, by the ſmall Angle I N D, which half the Length of the Index-glaſs ſubtends at the direct Object; yet this laſt, being always a proportional Part of the former, may eaſily be found and added to it; in the Generality of Quadrants it will amount to about One-fifth Part of it. The Sum of the Angle S P N found by the Inſtrument, and this Angle I N H added together, is the Angle S I N required. *Euclid* I. 32.

It may here be remarked to thoſe who are deſirous of minute Accuracy, that what has been called the Center of the Index-glaſs is not to be literally underſtood as ſuch, unleſs when the Axis of the Teleſcope is at the ſame Diſtance from the Plane of the Quadrant as this Center. For the Point from

which

which the angular Diſtances are to be eſtimated, is always at the ſame Diſtance from the Plane of the Quadrant as the Axis of Viſion; and ſituated ſomewhere in a Line at Right-angles to that Plane, and paſſing through the Center of the Index-glaſs.

There is one Caſe in which the preceding Directions of adding to the Angle given by the Inſtrument the ſmall Angle, which the Centers of the Speculums ſubtend at the direct Object, are not ſtrictly applicable; and that is, when the Angle found by the Inſtrument amounts to 180 Degrees, or differs leſs from it than by the ſmall Angle juſt mentioned. For in this Caſe, as the angular Diſtance of two Objects cannot exceed 180 Degrees, the Addition becomes equivalent to a Subtraction.

Thus if the Inſtrument adjuſted parallel, makes the angular Diſtance of the Objects S and N (Fig. IV.) equal to 180 Degrees; in order to reduce this to the Center of the Index-glaſs, the Angle N I Z, equal to H N I, muſt be ſubtracted from it. For S I N is the angular Diſtance of the two Objects eſtimated from I, which falls ſhort of two Right-angles, by the Angle N I Z, equal, becauſe of the parallel Lines I Z, H N, to the Angle I N H, which the Centers of the Speculums ſubtend at the direct Object.

If R had been the doubly reflected Object, the Angle found by the Inſtrument would be R N *r*, being the Supplement of the Angle R N H, which the incident Ray R I produced, forms with the doubly reflected Ray E H produced, at their Point of Interſection, which in this Caſe coincides with the direct Object N. If to this Angle R N *r* found by the Inſtrument, which is equal to R I Z, there be added the Angle I N H, equal to which is

N I Z; the angular Diſtance of the Objects R, N, eſtimated from I, the Center of the Index-glaſs, will be juſt 180 Degrees.

From the whole there reſults this general Rule, which is equally applicable in the fore and back Obſervation. The Speculums being adjuſted parallel in the fore, and perpendicular in the back Obſervation, firſt find the angular Diſtance of the Objects in the uſual Way; and then, by the Directions juſt given, find the Angle which the Centers of the Speculums ſubtend at the direct Object, taking Care that the Center of the Index-glaſs retain the ſame Poſition in both Obſervations. If the Sum of theſe two Angles is leſs than 180°, that Sum is the angular Diſtance of the Objects eſtimated from the Center of the Index-glaſs. But if this Sum exceeds 180°, the Supplement to 360° is to be taken as the true angular Diſtance of the Objects eſtimated from that Point.

DEFINITION.

AS Mention has been made of near Objects and diſtant Objects, it may be aſked how the Limit between theſe is to be determined? The Anſwer is, that thoſe are to be accounted diſtant Objects, at which the Diſtance between the Speculums does not ſubtend a ſenſible Angle. But without being at any Trouble in calculating this Diſtance, which differs in the fore and back Obſervations, as well as in different Inſtruments; there is an eaſy practical Rule for determining the Matter in all Caſes, which is this. The Quadrant being adjuſted by the Horizon of the Sea, or any of the celeſtial Bodies, obſerve whether the Object, which is to be taken as as the direct one, coincides as to Senſe with its reflected Image; if this is the Caſe no Correction is neceſſary, as the Angle given by the Inſtrument will not differ ſenſibly, from the angular Diſtance of the Objects eſtimated from the Center of the Index-glaſs. But otherwiſe, the Correction is to be found and applied, as above directed.

REMARK.

IF the Prejudices againſt the back Obſervation ſhould be got over, it ſeems reaſonable to expect the following Advantages from its Uſe.

The lunar Obſervations will be extended; for the angular Diſtance of the Sun and Moon may be obtained, whenever both theſe Luminaries are viſible, however great that Diſtance may be. And the Sun, beſides the Advantage he poſſeſſes from being ſituated in the Ecliptic, ſo that (his proper Motion excepted) as little as poſſible of the Moon's ſlow Motion is loſt, is deemed a better Object to obſerve by, than a Star. The Altitudes too can be found with more Eaſe and Accuracy, and the whole Proceſs more conveniently conducted in the Day-time, than at Night.

But it is in high Latitudes, that the Practice of the back Obſervation will be found more particularly uſeful. There, during the Summer, the continual Preſence of the Sun, effacing by his Splendour the Appearance of the Stars, leaves no Choice of Objects. And in ſuch Situations the Extenſion of the lunar Obſervations becomes an Object the more deſireable, as the Ship's Longitude may, by their Means, on account of the Smallneſs of the Degrees, be determined ſo very near the Truth.

Beſides theſe Advantages, which the lunar Obſervations may be expected to derive from rendering the Quadrant capable of meaſuring accurately the largeſt Angles; there are other Occaſions, on which the back Obſervation has been recommended, and will be found uſeful. Thus in finding the Latitude, whether by a ſingle Altitude, or two Altitudes with the Time between, and in other Caſes, where Altitudes are wanted, if the Horizon ſhould happen to be bad under the Meridian on one Side, or if it ſhould be obſtructed by a Headland, or Veſſel, the Obſervation may, notwithſtanding, be made with the ſame Accuracy on the oppoſite Side.

The Surveyor on Shore too will be enabled to find the angular Diſtance of near Objects, in all Caſes, with Accuracy; and to determine his Latitude, and on ſome Occaſions his apparent Time, by the Method of Reflexion from the Surface of Quick-ſilver, or any other horizontal reflecting Plane; Problems beyond the Reach of the Sextant conſtructed in the common incomplete Form, without a back Horizon-glaſs, when the Altitude of the Object exceeds 60 Degrees.

THE END.

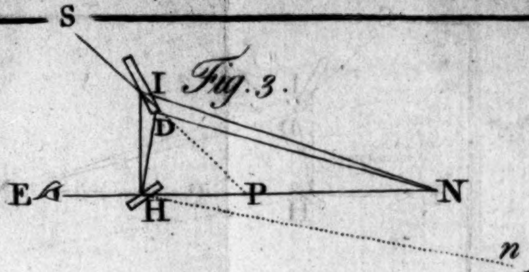
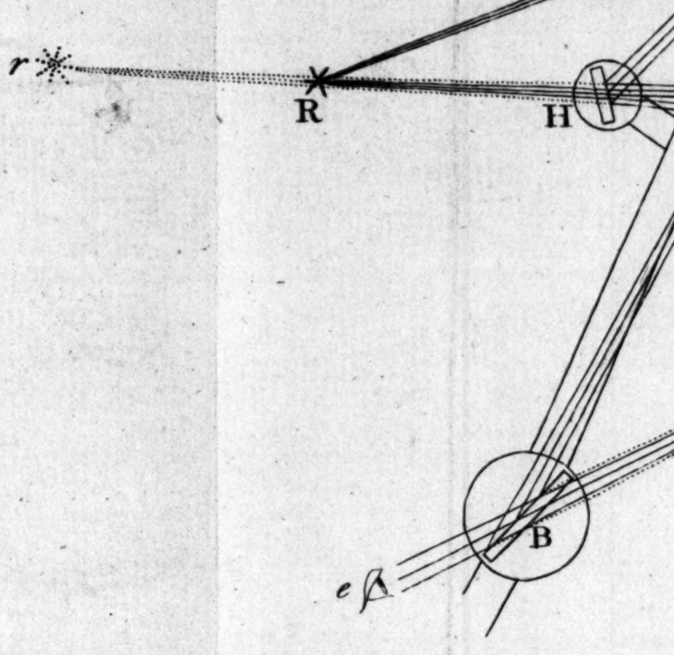


Fig. 3.



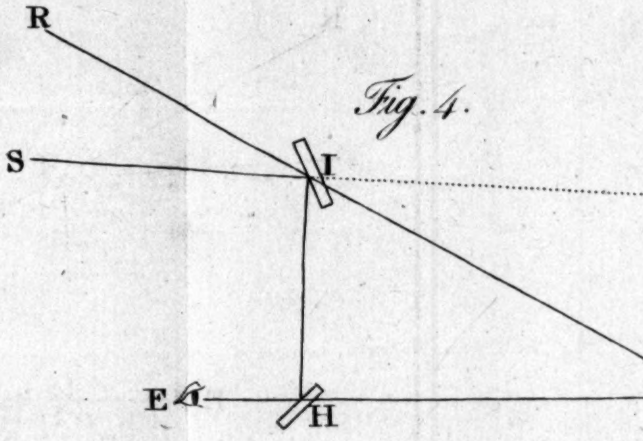


Fig. 4.

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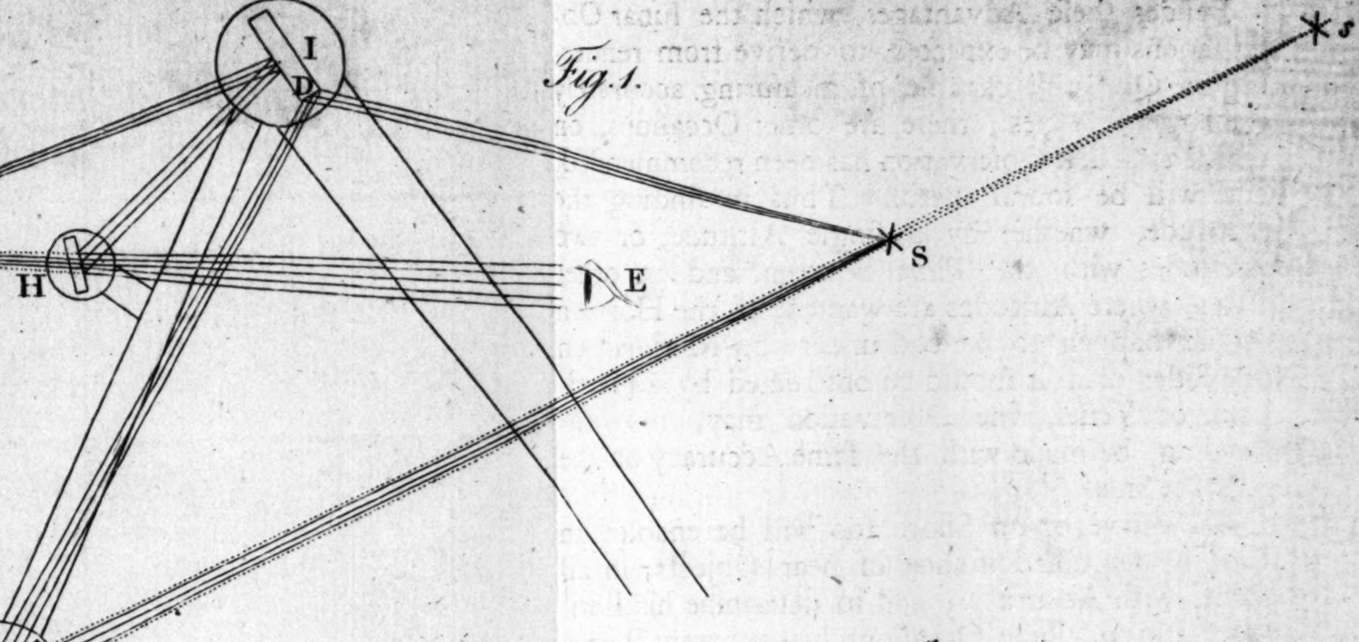


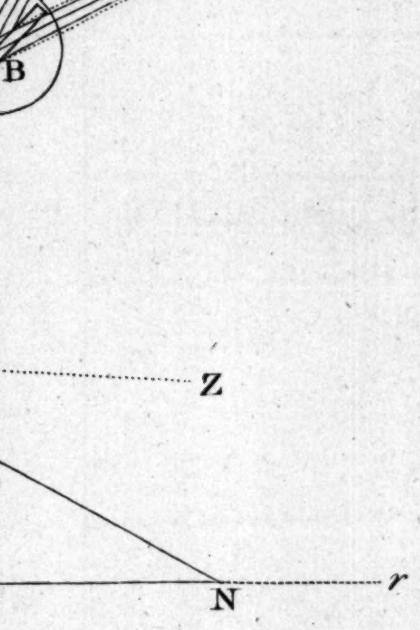
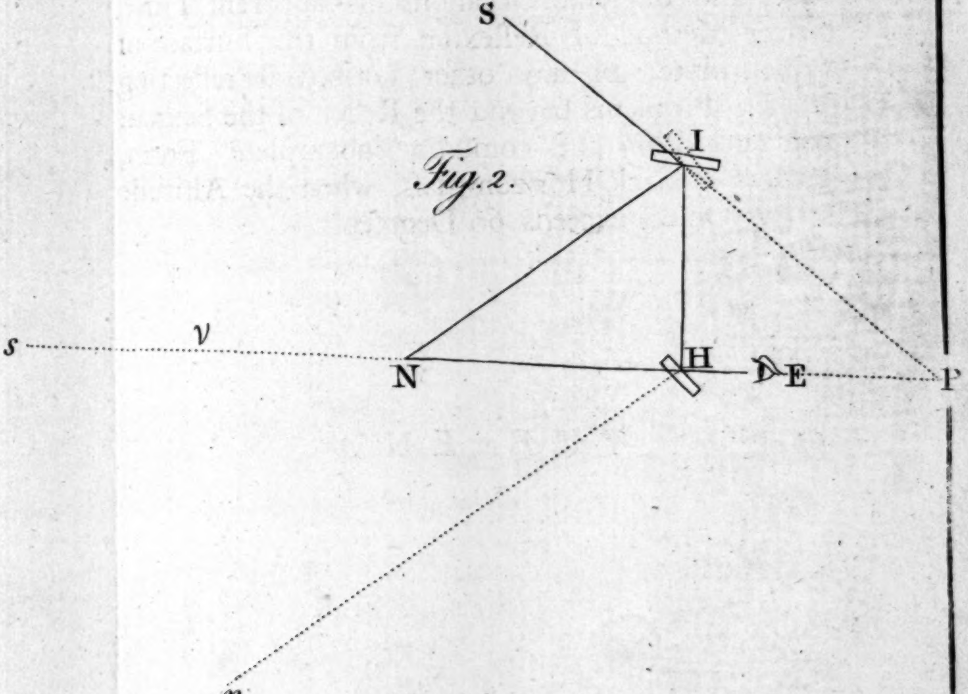


Fig. 2.



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